Practice Report



Development of a U.S./U.K. Collaborative Online International Learning (COIL) partnership for undergraduate education in public health

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Abstract

reparing future public health (U.S.) or health and social care (U.K.) professionals for international settings is imperative in today's higher education landscape. Collaborative Online International Learning (COIL) is an innovative form of virtual exchange (VE) that provides students with international experience, cultural competence, and an understanding of global healthcare needs. This practice report summarizes how two universities in the U.S. and U.K. co-developed a COIL unit for their public health and health and social care students to learn about international healthcare systems. Public health faculty used SUNY COIL planning strategies and backward course design to guide the planning of the COIL unit. The learning processes and outcomes were designed to support program and campus learning outcomes that align with domain areas required by the Council on Education for Public Health. The planning process, curriculum, and technology used for the COIL unit are outlined. Evaluation of the unit included achieving student learning outcomes at the course, program, and campus levels; changes in intercultural awareness based on the Intercultural Knowledge and Competence VALUE Rubric; benefits to students, research assistants, and faculty; and alignment with the qualities of VE.

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1. Introduction

Accessibility to and utilization of healthcare is limited for many people. At least half of the world's population is unable to obtain essential health services, and a large portion are pushed into poverty because of healthcare-related expenses (World Health Organization, 2021). Future public health and/ or health and social care students must understand healthcare systems, both in their own countries and around the world, so that they fully understand the causes of health inequities and can advocate for change that promotes increased healthcare accessibility and positive health outcomes. According to the Council on Education in Public Health (CEPH) (2018), which accredits U.S. schools and programs of public health, undergraduate programs in public health are required to provide curriculum addressing key domains. Two of those domains are "the fundamental characteristics and organizational structures of the US health system as well as the differences in systems in other countries" (p. 3) and "the socioeconomic, behavioural, biological, environmental, and other factors that impact human health and contribute to health disparities" (p. 3).

Using Collaborative Online International Learning (COIL) as a learning/teaching methodology is a natural fit for comparing international healthcare systems among undergraduate public health students. COIL has been shown to enhance several factors that are relevant to learning about international healthcare systems in a collaborative environment. These include cross-cultural understanding, problem-solving skills, and communication skills (Inada, 2022). By engaging undergraduate learners and health professionals across multiple continents and cultures, COIL provides a unique learning experience that can enhance cultural competence, promote a deeper understanding of global systems, and enhance international relationships (Beelen & Jones, 2015; Esche, 2018; Marcillo-Gómez & Desilus, 2016; Nava-Aguirre et al., 2019; Rubin, 2017; The SUNY COIL Center, 2021a).

In a COIL unit, faculty can enrich the learning environment using COIL methodology by engaging students from different cultural backgrounds and countries to work together on shared course-related projects and activities, using technology to communicate and collaborate (The SUNY COIL Center, 2021b). The course-related projects are jointly developed and taught by faculty from different countries, who collaborate to design and facilitate online activities and assignments that bring

students from both countries together. These activities may include virtual discussions, group projects, joint presentations, and other forms of interactive learning. By learning to view subject-specific learning tasks or activities through a global lens and using digital learning tools, students participating in COIL can develop cross-cultural understanding and intercultural competence through shared learning experiences, rapport with students from different world regions, and digital skills while working collaboratively with international peers (Rubin, 2017; The SUNY COIL Center, 2021a).

COIL has become an increasingly popular approach to promoting global health education and building capacity in many disciplines. For public health, COIL offers unique opportunities for students and faculty to engage with peers from different countries, cultures, and perspectives, while working together to discuss and address real-world public health challenges. The purpose of this practice report is to outline the planning, implementation, and evaluation processes involved in a COIL partnership between public health faculty in the U.S. and U.K. that focused on comparison of international healthcare systems.

2. Context

The COIL project described in this paper came about through a partnership formed by public health academics from a regional comprehensive university in the midwestern part of the U.S. and prominent university in the central U.K., who wished to bring their undergraduate students together in the virtual classroom and enable them to develop an understanding of different healthcare systems and experiences through the eyes of their peers. The U.S. university houses a standalone baccalaureate program (SBP) in public health, while the U.K. university provides both undergraduate and graduate education in health and social care. From the U.S. university, a third-year course required for undergraduate students (majors and minors) in the four-year public health program was selected. From the U.K. university, a third-year optional module/class from the three-year undergraduate Health and Social Care programme was selected. Traditional ages of students in these classes typically range from 19-22. Both courses were taught in English, and class sizes ranged from 15 to 30 students in the U.K. and U.S., respectively.

Author 1 was the original designer of the COIL project, including course goals, learning outcomes, and assignments. Based on an established connection via the institutions' COIL Coordinators, authors 1 and 4 identified a class and instructors to facilitate the COIL project. Authors 1 and 2 collaborated on developing the evaluation and implementation timeline, and authors 3 and 4 provided feedback and approval. Authors 2 (U.S. instructor) and 3 (international doctoral student with the role of peer

educator/co-instructor), plus one additional instructor and two undergraduate research assistants (RAs), were involved in course instruction and worked directly with students.

During the setup of the COIL unit, both the U.S. and U.K. partners offered research assistantship opportunities to select students to help them develop leadership and development skills on an international level. Author 2 supervised research assistantships for two undergraduate students, with each student enrolled for 1-3 credits (1 credit = 40 hours). During this COIL unit, RAs met with Authors 1 and 2 weekly throughout the semester to develop skills on the technology used and learn the project goals and learning outcomes. The two RAs were tasked with helping students with course technology, developing instructional materials, providing feedback on survey questions, and contributing to the dissemination of project results through development of slideshow materials for conference presentations.

3. Objectives

The impetus for this COIL partnership began in the fall of 2017, when Author 1 applied to be part of a COIL Cohort program, which was a competitively funded semester-long program hosted by the U.S. university. The purpose of the cohort was to support the development of faculty COIL projects and support implementation of that project. In the COIL application, Author 1 (personal communication, November 14, 2017) proposed the following:

This project will focus on comparison of international healthcare systems. Healthcare is a foundational element of public health, and understanding various healthcare systems is a required element of undergraduate public health education (as required by the Council on Education for Public Health [CEPH], which is the accrediting body for [U.S.] public health programs in higher education). Using COIL to engage learners and health professionals across multiple continents and cultures will provide a unique learning experience that will promote a deeper understanding of global healthcare systems while enhancing international relationships. (n.p.)

Author 1 attended the cohort sessions and, using backward course design (Martin et al., 2019; Wilson, 2023), developed goals, learning outcomes, and methods for a COIL unit for incorporation into the Consumer Health Education course (Table 1). In the course, students learn about consumer health topics that inform decision-making regarding healthcare products, services, and providers. By

participating in the COIL unit, students would demonstrate their ability to: (1) establish collaborative relationships with students from a different country, (2) understand different healthcare systems, (3) provide solutions to meet each country's needs, and (4) increase their own intercultural awareness. Each goal was measured based on the outcome of student work. For the U.S. university, the intention was to incorporate an international comparison of healthcare systems in a way that engages students in international virtual exchange (VE) and supports curricular program goals that align with the University's student learning outcome to demonstrate competence in a major field (University of Minnesota Duluth, 2009) and the following CEPH (2018) standards for SBPs:

- CEPH Domain Area 8 for SBPs: Socioeconomic, behavioural, biological, environmental, and other factors that impact human health and contribute to health disparities;
- CEPH Domain Area 9 for SBPs: Fundamental characteristics and organizational structures of the U.S. health system as well as the differences in systems in other countries;
- CEPH Foundational Competency 1 for SBPs & Program Learning Outcome 1: Locate, use, evaluate and synthesize public health information; and
- CEPH Cross-Cutting Concepts and Experiences for SBPs:
 - Critical thinking and creativity
 - Systems thinking

Goals The goal is to	Student Learning Outcomes (SLOs) Students will be able to	Methods Students will	Evidence Students will submit
GOAL 1: Establish collaborative relationship with students from a different country.	 Identify five places within own city that partners should visit. Locate partners' university, city, and country on a map. Define cultural geography. Share three examples of cultural geography. Describe their partners' cultural geography, university, and city. 	 Contribute to Google My Maps. Conduct a virtual visit of their partners' university and city using Google Maps. Complete cultural geography activity using Padlet. 	 My Maps content Link to Padlet
GOAL 2: Understand different healthcare systems.	 Explain how the healthcare system in your own country operates. Discover how the healthcare system in another country operates. 	 Research own country's healthcare system (method selected by instructor). Develop a list of interview questions (with input from instructors). Conduct interviews of each other regarding healthcare (students choose method). 	List of interview questionsInterview notes
GOAL 3: Provide solutions to meet your country's needs.	 Compare how their partners' healthcare system is similar/different from theirs. Evaluate strengths and weaknesses of both healthcare systems. Propose a plan for healthcare that would benefit the people in their own country. 	 Collaborate with home school groups to compare, evaluate, and propose a plan for healthcare (students choose method). Present finding to classmates (method indicated by instructor). 	• In-class (U.K. students only) or online presentation (U.S. students only).
GOAL 4: Increase intercultural awareness.	11. Reflect on learning about cultural geography, healthcare systems, and COIL.	• Complete online reflection form (Google Forms).	• Completed survey

Table 1. COIL goals & objectives using backward course design

For the U.K. university, within the Global Health and Development module, the COIL project supported the module outcome by helping students to critically consider issues relating to global health and development, and helping them to examine the emerging debates on global health system development and related public health challenges:

• Enhancing intercultural competence: COIL projects provide opportunities for students to interact with peers from different cultures and backgrounds, helping them develop a greater understanding

of diverse perspectives and approaches to addressing public health issues. This supports the module outcomes related to intercultural competence and global citizenship.

- Building practical skills: COIL projects often involve real-world public health challenges and require students to work in teams to develop and implement solutions. This supports the module outcomes related to practical skills such as teamwork, communication, critical thinking, and problem-solving.
- Integrating multiple perspectives: COIL projects allow students to bring together different disciplinary perspectives, approaches, and experiences. This supports module outcomes related to interdisciplinary learning and encourages students to think critically about complex public health issues.
- Expanding professional networks: COIL projects provide opportunities for students to connect with peers and faculty from other countries and institutions, expanding their professional networks and exposing them to different career paths and opportunities within the field of global health development and public health. This supports the module outcomes related to professional development and networking.

4. Project design

4.1. Establishing the partnership

As a faculty member in the U.S., Author 1 had been developing relationships with Author 4 and other faculty in the U.K. for over a decade. Working on the COIL project together was an extension of their larger collaborative relationship, which includes mapping curriculum for long-term study abroad options, collaborating on short-term study abroad opportunities, and growing educational and research partnerships. As part of the COIL Cohort, Author 1 had full support of university administrators. The U.S. university has a history of educational innovation, faculty with COIL experience, a built-in program of COIL training, and funding to support COIL and other international efforts. The U.K. university was new to the COIL concept, but their faculty and administrators are leaders in international collaboration, research, and education. For both universities, connecting globally is a core strategic theme, and working with international partners in both teaching and research is a key expectation.

4.2. Time zones & class formats

The time zones and class formats were major factors to consider as part of the planning process. During this COIL unit, the U.S. partner's class format was fully online, and the U.K. partner's format was in-person. The time zone difference also created a challenge, with the U.S. partner being in Central Standard Time (CST) and the U.K. partner in Greenwich Mean Time (GMT). Due to the sixhour time difference and the differing formats for the two classes, faculty provided students (via email or direct message) with a weekly outline of assignments.

4.3. Student communication

Considering student needs regarding synchronous and asynchronous communication was an important aspect of unit implementation. COIL planners from the two universities had several points to consider: (1) Communication may be different for each university as there might be restrictions on the virtual platforms (e.g., Skype, Zoom, and Microsoft Teams) and web browsers that may be used, (2) how easy or difficult it is to explain and use some of the technology tools being considered, and (3) what each specific platform adds to the learning experience, while also considering if it is worth using in the COIL unit (e.g., cost). For the first iteration of the COIL unit, Skype and email were used for synchronous and asynchronous communication, respectively.

4.4. Technology for learning activities

Technology was a key part of the COIL learning experience. Some of the options considered for use were Google My Maps, Padlet, Microsoft PowerPoint, and WhatsApp. Based on accessibility and ease of use, Google My Maps, Padlet, and email were the primary forms of technology used for completing sections of the assignments. There were varying degrees of student and faculty familiarity with the planned technology, so training time was built into COIL unit implementation.

4.5. Assignments

Between instructors, the pedagogy was developed prior to beginning the COIL project. A Google document was created to lay out the flow of the unit and serve as a guide for both faculty and students (Table 2). A mix of assessments designed for the COIL unit included a pre-assessment survey, My Maps introductions, a Padlet cultural geography assignment, interview questions to learn about perspectives of peers on healthcare systems, written reflections, proposed plans for improving their

own healthcare systems based on comparisons with peers in the partner country, individual presentations, and a post-assessment survey.

Table 2. Implementation guide

Dates	Activity	Details
WEEK 1		
Friday	Seminar/ introductory session with U.K. students	 Introduce project to U.K. students. Prepare students for project. View student groups handout. Gather student emails to forward to U.S. team.
WEEK 2		
Friday	Contacts with U.S. students	 Contact other group members from U.S. Agree on communication method.
WEEK 3		
Friday	Use of digital tools	 Prepare U.K. students on the use of digital tools for project (e.g., Google My Maps, Padlet). Go through handbook.

Dates	Activity	Details	
WEEK 4			
Mon-Fri Building (Start of relationships		 Make a plan for creating a Google My Maps and a Padlet for your group. Create a group name/nickname (be creative!). 	
project with U.S. team)	Map introductions	 Create a single group map in My Maps. Name it "Fall 2018 Group #: Your Group Name" (Example: Fall 2018 Group 9: The Cat Lovers). Share your group map with all group members and course instructors. Add pins for the following: Where are you from? Where are your ancestors from? Where have you traveled? Where are 5 places in your city that someone should visit? What are 3 university buildings/locations someone should visit? Visit each other's pins to learn about each other and their university/city. 	
	Cultural geography	 Create a single group Padlet using the "shelf" format. In the Modify panel, name it "Fall 2018 Group #: Your Group Name" (Example: Fall 2018 Group 9: The Cat Lovers) In the People & Privacy panel, make sure setting is "secret." Add all group members and the instructors as collaborators by entering their email addresses. Create 5 columns with the following titles: Introductions, Locations, Cultural Geography, Examples of CG, and Reflection. Introductions: In the introduction column, add a video post to introduce yourself and teach other group members how to pronounce your name. Location: In the Location column, add a written post which answers the question "How would you describe where you live to someone who has never been there before?" Cultural Geography: In the Cultural Geography column, research the term cultural geography and share what you find. Include a written post that summarizes how you would explain cultural geography to someone. Examples of CG: In the Examples of CG column, post 3 examples of cultural geography (in the form of videos or photos with captions) that express something unique about your lifestyle (examples: food, weather, landscape, transportation, activities, work, etc.). Reflection: In the Reflection column, create a post of any kind in which you reflect on: (a) What was your favorite part of this COIL so far? (b) What stands out to you the most? (c) What do you still want to know about your group members? 	
WEEK 5			
Mon-Fri	Interviews	 Review the list of Suggested Healthcare System Interview Questions. Add additional questions, if you like. With your group members, you will create a slideshow asking interview questions to the other group of students (U.S. to U.K.) and vice versa. Each U.S. student should develop 2-3 slides in the slideshow to ask questions (2-3 questions each) to U.K. students in your group that others did not ask. Communicate with each other to decide question levels for each person and create 1 slideshow. You can use voice recordings, visuals, or whatever else you can do creatively to ask your questions to U.K. students. 	

Dates	Activity	Details
		 Provide the slideshow by to U.K. group of students. Then return by end of week so other students can summarize findings (individually). Organize your findings and summarize the results of your interviews. You will use these results in the next section.
WEEK 6		
Mon - Tue	Group work	 Write a brief description of home country's healthcare system (Provision and access to healthcare; strategies for delivering services; efficiency of policies on health promotion, disease prevention, health protection, health awareness and community engagement; government roles and actions; available support for the elderly; primary health care; availability of health funds and health care expenditure). Reflect on any public health issue of your choice Exchange information gathered with other students from other university. Identify the similarities and differences. Analyze the strengths and weaknesses of both health systems
Wed - Fri	Presentation of findings	 Propose improvement plans for your own country's healthcare system. Presentation of findings. U.S. Students: Online presentation: Prepare 4-slide presentation to submit online. U.K. Students: In-class presentation: Prepare 4-slide presentation to present in class.
WEEK 7		
Friday	Reflection	 Reflect on the learning process and benefits of the COIL program. Complete the online reflection form.

5. Evaluation and discussion of outcomes

Author 2 collaborated with Author 1 to tailor implementation and assessment processes. For the U.S. university, learning processes and outcomes were designed to support program and campus learning outcomes that align with public health domain areas required by CEPH. Evaluation of the COIL unit included process evaluation and achieving student learning outcomes at the course, program, and campus levels; benefits to students, RAs, and faculty; and alignment with the qualities of VE. Preand post-measures included sections on knowledge about COIL, the COIL experience, and intercultural awareness based on the Intercultural Knowledge and Competence VALUE Rubric (IKCVR) (Association of American Colleges and Universities, 2022).

5.1. Time frame for implementation

The initial plan was a two-week COIL unit, which was piloted during the spring of 2018. It was discovered that the timeframe needed to be extended to allow students to comprehend the COIL project, communicate with students at the partner institution, and learn new technology. As a result, the initial two-week unit was extended to a seven-week unit for a full implementation of the COIL unit in the fall of 2018. This allowed for better pacing for both the students and faculty.

5.2. Evaluation of student learning

The COIL module was evaluated through students meeting learning outcomes that support four key project goals (Table 1): (1) establish collaborative relationships with students from a different country; (2) understand different healthcare systems; (3) provide solutions to meet each country's needs; and (4) increase intercultural awareness. Each goal was measured based on the outcome of the student's work. This included evidence based on My Maps and Padlet assignments, interview questions and answers, final project presentations, and pre- and post-surveys. U.K. and U.S. student presentations were based on the class format (e.g., in-person and online) (Table 2).

5.3. Impact on students' intercultural knowledge and COIL experience

Students completed a mixed methods post-evaluation for the purposes of assessing changes in intercultural knowledge, providing feedback on the COIL unit, and highlighting what students learned about cultural geography and healthcare systems. Qualitative questions assessed student experiences with the COIL unit and student suggestions for future COIL sessions. Some of this feedback is presented below:

- "It went very smoothly and was extremely beneficial to learn this firsthand from people involved."
- "I would like to thank the coordinators for giving me this opportunity. It was challenging as some of the things covered were new to me, nonetheless I thoroughly appreciate the different aspects of learning."
- "This was a very fun and eye-opening experience and one that I have never really participated in before."

When asked "What would you recommend for future COIL topics?" student responses included:

• education systems

- integrative medicine
- health care issues
- governmental interventions, non-governmental organizations, and charities
- cultural traditions

5.4. Benefits for RAs

After completion of the COIL section, the RAs had an opportunity to present the findings at an international conference, for which one RA was involved in extracting data, developing written and visual content for the slideshow, and co-presenting. The RAs were able to use this setting to network internationally with the collaborating team and gain skills related to working on an international conference presentation. For the RAs, participating in COIL implementation and research led to transferable skills that can be applied in many different public health settings. These skills include intercultural awareness, communicating internationally via technology, peer mentoring, working in teams, and leadership.

5.5. Benefits for faculty

For faculty, benefits included building collaborative relationships with international partners. In addition to creating a foundation for a successful COIL project, it created opportunities for further collaboration on other projects and visits to the partnering universities/countries. Creating the COIL unit introduced a research line to faculty working toward tenure and/or promotion, with opportunities for conference presentations, manuscript publication, and training others on COIL planning. Also, COIL provided a source of introducing international concepts and innovative pedagogy to course curriculum.

5.6. Alignment with the qualities of VE

As a form of formative and evaluative assessment, COIL collaborators used the core qualities of VE (Evolve, 2022) to determine how those qualities were met during the COIL project and identify areas that were improved or updated in successive implementations of the same COIL unit (Table 3).

Core qualities of VE	How achieved in the 2018 COIL unit	Improvements made in future implementations of the COIL unit
Sustained		
• Unfolding over time.	• Expanded original two-week unit to seven weeks for better implementation of course goals and curriculum.	
• Regular, intensive interaction.	• Seven-week unit allowed for regular interaction between learners and instructors.	• For future implementations, faculty became more skilled at facilitating the COIL unit, which allowed for shorter COIL implementation (from seven weeks to five weeks).
Technology-enabled		
 Using new media, digital, and/or mobile technologies. 	• Used a range of free web-based tools (see Tables 1 & 2).	 Original web-based tools were kept. ThinkLink was added. Video conferencing tools switched from Skype to Microsoft Teams.
Synchronous		
• Regular synchronous or near- synchronous meetings using high "social presence" media.	 Two synchronous class meetings (week 1, week 3). Students communicated with international group partners over a fiveweek span. 	
People-to-People		
• Inclusive, intercultural collaboration and dialogue that bridges differences and distances.	• See Table 1, GOAL 4: Increase intercultural awareness.	
• Inspires action with a long term positive impact on relationships.	• See Table 1, GOAL 1: Establish collaborative relationship with students from a different country.	
Learner-led		
• Participants are the main recipients and the main drivers of knowledge.	• See Table 1, GOAL 2: Understand different healthcare systems.	
 Participants seek mutual understanding and co-creating knowledge, based on their own experiences. 	• See Table 1, GOAL 3: Provide solutions to meet your country's needs.	

Table 3. How this COIL project incorporated the qualities of VE

Core qualities of VE	How achieved in the 2018 COIL unit	Improvements made in future implementations of the COIL unit
Facilitated		
• With the support of trained facilitators and/or educators.	 Faculty and research assistants were all from public health and/or social care backgrounds. One U.S. faculty was trained in COIL planning process. Faculty collaborated on the use of webbased learning tools. 	• All U.S. faculty involved in the COIL unit completed a COIL cohort.
Educational		
 Integrated into formal and/or non- formal educational programmes and activities. 	 U.S. university CEPH accreditation requirements for standalone baccalaureate programs. Course, program and campus learning goals/outcomes. U.K. university Program and university level values. 	
• Measurable increases in the skills, knowledge, and attitudes that foster pro-social behaviours.	 Quantitative: Intercultural Knowledge and Competence VALUE Rubric. Qualitative: course reflections; benefits for student, research assistants, and faculty. 	
Structured to foster mutual understa		
 Covering topics related to identity, empathy, perspective taking, critical reflection, intercultural understanding. 	• See Table 1 for goals, student learning outcomes, methods, and evidence.	
• Helping participants to engage in constructive conversations that promote intercultural understanding and awareness.	• See Table 1 for goals, student learning outcomes, methods, and evidence.	

As shown in Table 3, the COIL unit met the qualities of VE and identified five key changes implemented in future iterations of the COIL unit. These improvements included increased faculty skills for COIL implementation, COIL training for faculty, and use of web-based and video conferencing tools.

6. Conclusions

Preparing future professionals for international careers in public health (U.S.) and health and social care (U.K.) sectors is imperative in today's higher education landscape. Students need to develop

intercultural competence and understand healthcare and health equity needs around the globe. The COIL methodology provides an innovative approach to meet these goals. COIL can benefit public health programs in the U.S., which need to align with CEPH accreditation standards (CEPH, 2018), as in the U.K. there is a need for the alignment with health and care professions standards (Health and Care Professions Council, 2018). COIL can provide both positive learning experiences and research opportunities for students (Beelen & Jones, 2015; Esche, 2018; Marcillo-Gómez & Desilus, 2016; Nava-Aguirre et al., 2019; Rubin, 2017), RAs (Gokcora, 2021), and faculty (Gokcora, 2021).

Planning, implementing, and evaluating a COIL unit requires consideration of many factors, including time zones, access to tools for virtual exchange, and familiarity with technology. Successful implementation of a COIL unit or course requires committed faculty, support from partner institutions, and the ability to adapt as needs arise. There are many ways to assess the success of a COIL unit, including changes in intercultural knowledge; benefits to students, RAs, and faculty; and alignment with the qualities of VE.

A critical reflection of lessons learned has shown possible improvements for future COIL projects. Additional ideas for COIL topics include education systems, integrative medicine, health care issues, governments, and cultural traditions. Aligning the COIL unit with other disciplines could promote knowledge exchange about public health across diverse fields. When planning a COIL unit, educators should consider when terms begin and end at each institution. With the alignment of term dates, a COIL unit could extend beyond seven weeks to accommodate the needs of international partners. Institutional engagement with the COIL unit is equally important, as support for technology, tutor orientation, capacity building, and timetabling is vital for a sustainable COIL project.

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