Cities as a Learning Laboratory: An Experiment in Hybrid Student Exchange between Universities

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Abstract

The paper presents an experiment in virtual student exchange between the University of Pittsburgh, USA, and Konan University, Japan, to explore sustainable urban development and learn about each other's cities and approaches to creating urban spaces for the 21st century. Using various tools and learning strategies, the students shared experiences interacting with their surroundings and neighborhoods regarding three urban realities – resilience, livability, and sustainability. The paper explores these three concepts through the idea of a "Sense of Place" (or 地域自慢, in Japanese) in understanding how communities and other urban stakeholders create unique spaces within the concepts of resilience, livability, and sustainability.

Keywords: Online learning, study abroad programs, hybrid learning systems, COVID-19, COIL, Kobe city, Pittsburgh city.

要旨

本論文では、本学と米国ピッツバーグ大学の Collaborative Online International Learning（COIL)オンライン協働学習の実践事例を紹介する。まず、状況により形式を変化させながら３年にわたる国際協働学習の試みを紹介し、学習のプロセスがどのように展開していくかに主眼をおいて研究をしたものである。両大学の学生は様々なツールや戦略的な学習手法を用いて、自らの周囲や地域との関わりについて学びを共有し、「センス・オブ・プレイス」（日本語では「地域自慢」）の概念を適用させて、コミュニティや他の都市関係者の持つ三つの概念、「レジリエンス（復興力）」、「リビラビリティ（住みやすさ）」、「サステナビリティ（持続可能性）」に焦点を当てて学習することとした。COIL プログラムがどのように学生たちに気づきと学習のモチベーションを提供するか、また学生たちの学びをどのように変化させていくのかについて考察する。

1. Introduction

The COVID-19 pandemic posed many challenges to learning, particularly impacting in-person and study abroad programs. With global travel restrictions and lockdowns, students faced disruptions in both traditional in-person education and international experiences (UNESCO, 2022; Martel, 2020).

One of the major challenges was the abrupt disruption of traditional in-person education. With lockdowns and travel restrictions implemented globally, students faced difficulties attending physical classes and participating in on-site learning experiences (UNESCO, 2022). Adapting to online learning posed another challenge. While technology allowed for continued education, the sudden shift to virtual classrooms required adjustments from both students and educators (Liu and Shirly, 2021).

The need to shift to online learning revealed a number of opportunities in the educational landscape (Fernández-Batanero et al., 2022). As the situation prompted a reevaluation of traditional learning models, educational institutions, faculty, and students alike were compelled to adapt to a new normal, navigating uncertainties and embracing innovative solutions for continued learning (Neuwirth et al., 2020).

2. The COIL Model

COIL, or Collaborative Online International Learning[1], represents a pedagogical approach that connects faculty and students with their counterparts in other countries through online learning (SUNY, 2014). Such a learning system provides increased opportunities for global education by leveraging online educational methods and Information and Communication Technology (ICT) tools to promote international inter-university exchange. It has also provided new teaching and learning experiences that enable universities to educate globally-minded students more cost-effectively than otherwise possible.

The COIL experience has numerous benefits for students. According to relevant literature, positive student outcomes include a heightened sense of self-awareness as global citizens (Ullom, 2017), a perceived increase in intercultural awareness (Vahed and Rodriguez, 2021), and an appreciation of cultural diversity among students (Peterka-Benton and Benton, 2019). Other benefits for students include digital literacy and skills for the 21st century (SUNY, 2014). If designed and implemented effectively, the online learning environment can become a socially interactive space for students (Brindley et al., 2009) to connect and engage in intercultural interactions.

Faculty-to-faculty partnerships are essential in designing meaningful cross-cultural learning experiences that help to broaden students' global perspectives and foster the knowledge, skills, and attitudes needed to thrive in today's increasingly interconnected world (OECD, 2018). COIL has advanced global education by leveraging online educational methods for international inter-university exchange.

Uniquely, the COIL program implemented by Konan University and the University of Pittsburgh adopted the "Multi" approach - using different learning *modes* and covering different *disciplines*.

[1] The term "COIL" was first coined by the State University New York in 2006 and has since been adopted by a number of universities in Japan, US and other countries.

Such an approach includes different *locations* and involves different *stakeholders*. The “Multi” approach adopted for the COIL program will be explained in detail in section 4 of this paper.

As universities are increasingly being called upon to educate students who possess the knowledge, skills, and dispositions needed to tackle challenges at the local and global levels, the COIL course was designed specifically for students in response to this growing need and the need to sustain international student exchange experiences disrupted by the COVID-19 Pandemic. The shared teaching objectives of the COIL program were:

1. To create opportunities for cultural exchange between students at Konan University and the University of Pittsburgh.
2. To provide experiential learning possibilities for students to explore the urban development in their home cities.
3. To work with experts at both universities and cities to teach students about best practices in sustainable building and urban design as practiced in Kobe and Pittsburgh.
4. To provide students the opportunity to work in mixed groups of both universities to propose urban planning objectives or specific projects that embrace sustainable design.
5. To promote broader language and cultural exchange

3. COIL and the City as a Learning Laboratory

In order to take full advantage of the COIL model and create learning opportunities from a localized context – the city was adopted as a learning laboratory (Kobe in the case of Konan University and Pittsburgh for the University of Pittsburgh).

With more than 93 percent of Japan's population and 83 percent of the United States population living in cities (World Bank, 2024), an urbanized lifestyle is a reality that has significantly impacted our daily lives and production and consumption patterns. The increased urban population has created challenges and opportunities to better understand our surroundings as a "living laboratory" and image global cities – an ideal theme for “togetherness in a time of separation.” COIL was therefore envisaged as a program that bridges physical borders to bring together students from the two universities to explore themes related to sustainable cities.

The program was designed as a comprehensive experiential learning exercise that included lectures by experts, interactions with professionals working in the field, visits to different locations around the city and its neighboring areas, group activities and simulation games, and student projects. It created opportunities for cultural exchange between students at the two universities and provided experiential learning possibilities for students to explore their home cities as sustainable cities.

The program enabled students to work with experts at both locations and learn about best practices in lifestyles, interactions, and well-being that could lead to sustainable development in Kobe and Pittsburgh. As a hybrid approach, it included both online and face-to-face opportunities for students to work in mixed groups to propose projects that could improve neighborhoods and sustainable urban lifestyles.

The COIL program was conducted as a primarily synchronous, online, and face-to-face short course. Pre-course introductory lessons on each campus prepared students for a week of intensive

collaborative learning, during which they attended virtual and on-site lectures by experts relevant to the program's themes. Included in the interactions were seven to ten-day visits[2] of students from Konan to Pittsburgh (in 2022) and from Pittsburgh to Kobe (in 2023) to interact face-to-face for a core of intensive sessions. Students also worked together on field visits and proposed projects as a part of the final project that could be implemented in both cities to create a bridge between them as they build toward a sustainable urban future.

Figure 2 illustrates the overall structure of the COIL program implemented in three phases: pre-course preparation, a core course, and a post-course final project and wrap-up.

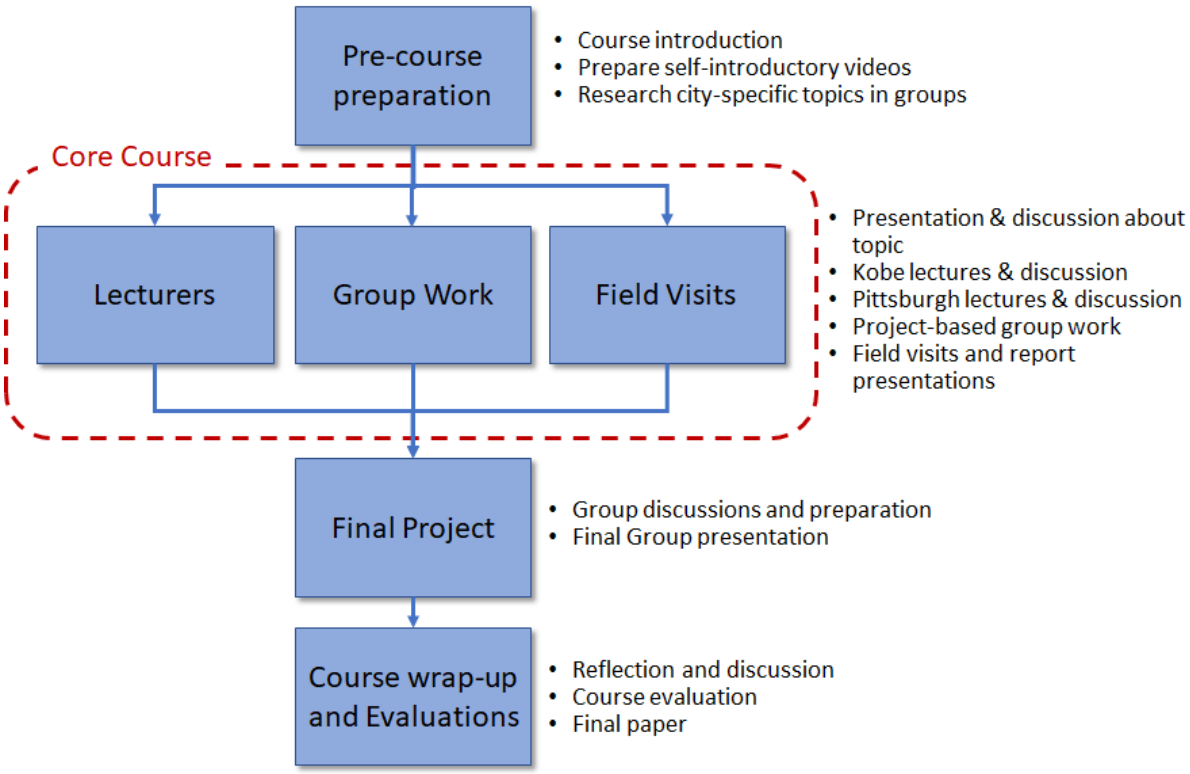

Figure 2: COIL Program Framework

In order to utilize the opportunity to look at the city as a living laboratory, Kobe in Japan and Pittsburgh in the United States were studied as a combination of three urban concepts:

1. **Resilient City:** Kobe has largely recovered from the 1995 Great Hanshin-Awaji Earthquake and has much to share on the concept of resilience and disaster risk reduction with other cities. Pittsburgh similarly has been transforming itself from a heavily industrialized city to one that has a diversified economy following the collapse of the steel industry there in the late 20th century.

[2] Due to restrictions imposed during the COVID pandemic, the first COIL program in 2021 was online only.

2. **Livable City:** Both Kobe and Pittsburgh, as medium-sized cities, have a high quality of life due to their unique geophysical location and other factors. Making a city livable requires a wide range of actions to be taken by both the public and private sectors, and both cities have a number of lessons to share on this front.

3. **Sustainable City:** With the United Nation's Sustainable Development Goals (SDGs) a top policy priority for both countries, Kobe and Pittsburgh have undertaken to implement multiple actions to make it a sustainable city, focusing on its communities and its business sector – in the social, economic and environmental spheres.

In the COIL program, students explored the three urban concepts through the idea of "Sense of Place"[3] (or 地域自慢, in Japanese) in understanding how communities interact with their surroundings to create unique spaces and improve within the concepts of resilience, livability, and sustainability. Examining urban spaces through the lens of the "sense of place" concept enhanced students' understanding of resilience, livability, and sustainability by acknowledging the unique cultural and emotional connections individuals have with their surroundings. It has the potential to foster community engagement and informed urban development decisions. This perspective also recognizes the importance of local identity and personal experiences in shaping more inclusive and sustainable cities.

The COIL program was conducted in 2021 (online only), 2022, and 2023 (hybrid - online and in-person) as a mostly synchronous, online, and in-person short course. Pre-course introductory lessons on each campus prepared the students for a week of collaborative learning, during which they attended virtual lectures by experts in sustainability and development professionals and worked together to propose projects that could potentially be implemented in both cities to create a bridge between them.

4. The "Multi" Approach of the COIL Program

The primarily synchronous, online, and in-person structure of COIL was enabled by the "Multi" approach adopted by the program - using different learning *modes*, covering different *disciplines*, including different *locations*, and involving different *stakeholders*.

As illustrated in Figure 1, the COIL program was designed to incorporate methodologies for –

- Multi-Learning: Developing pedagogical responses to navigate the challenges presented by COVID-19.
- Multi-Locations: Converting program objectives to be delivered online and in-person for students at two universities in Japan and the United States.
- Multi-Disciplinary: Exploring the importance of the urban context as a "learning laboratory."
- Multi-Stakeholders: Learning the lessons learned and indications for the future from the perspective of different urban stakeholders.

[3] "Sense of place" refers to the emotional and psychological attachment individuals feel towards a specific location, shaped by personal experiences, memories, and a deep connection to the cultural and environmental elements of that place.

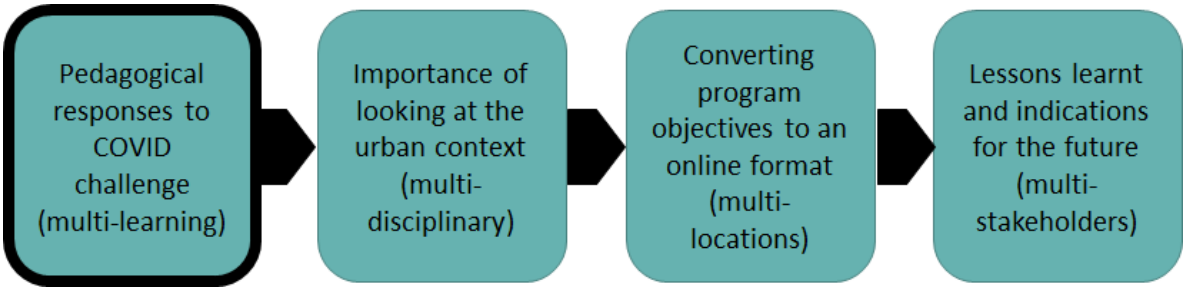

Figure 1: The "Multi" Approach Adopted by Konan University and the University of Pittsburgh

4.1 Multi-Learning

The COVID-19 pandemic necessitated developing a learning environment that avoided the 3Cs: crowded, closed, and close-contact to keep students and faculty safe. As a result, learning environments shifted from only in-person classes to formats that could be delivered primarily online or a combination of online and in-person. The tools and methodologies for developing cognitive, interpersonal, and intrapersonal skills also changed due to the COVID-19 pandemic.

Both Konan University and the University of Pittsburgh rose to the challenge of developing technological, content, and monitoring and evaluation readiness, adopting good practices from distance learning and open education strategies that could be adapted to the COVID-19 situation in synchronous, asynchronous, and hybrid modes of delivery.

This approach enabled the COIL program to implement its 2021 program as an online-only format and its 2022 and 2023 programs as a hybrid (online and in-person) format. The hybrid approach was particularly intensive, with lectures, expert presentations, field visits, group discussions, simulation games, and other interactions incorporated to make for a rich and active learning experience.

4.2 Multi-Disciplinary

Adopting the multi-disciplinary within the urban context met the challenge of providing a varied and interactive learning experience. Why cities? With more than 55 percent of the world's population living in cities, urban populations are increasing faster than the total world population (UNEP, 2011). Approximately 60 to 80 percent of the average GDP of a country is created in urban areas. It is particularly significant in Japan and the United States, where more than 80-90 percent of the population lives in urbanized areas (World Bank, 2024).

SDG #11: SUSTAINABLE CITIES AND COMMUNITIES The United Nation's 2030 Agenda for Sustainable Development Sustainable Development (2015) aims to "make cities and human settlements inclusive, safe, resilient, and sustainable" (p. 21); focusing on enhancing urban planning and the capacity for the well-being of present and future generations.	

Figure 3: The Urban Inspiration for the COIL program

Nevertheless, urbanization also has problems – approximately 60-80 percent of the world's energy usage, 75 percent of total carbon emissions (UNEP, 2011), and more than 75 percent of the world's natural resource consumption happen in cities (UNEP, 2024). Kobe needs a land area equal to five times the land area of the Hyogo prefecture as a whole to survive; Pittsburgh similarly needs 3.5 times the land area of the state of Pennsylvania to survive[4]!

COIL recognized this enigma that cities represented for our future, keeping its focus on the three themes of resiliency (a city's ability to respond, withstand, and recover from disasters), livability (factors that increase the quality of life), and sustainability (a lifestyle that attempts to live within what nature can provide us).

4.3 Multi-Locations

With learning about sustainable cities as practiced in Kobe and Pittsburgh as a key course objective, it was necessary to create opportunities for students to work together to identify actions that could potentially be taken up in the two cities.

As a part of the model adopted by Konan for the COIL program, various ICT tools listed in Table 1 were used in three phases - pre-course sessions conducted at each university to prepare the students for the course activities and included field study group work. The core course was delivered online using Zoom synchronously (in the early mornings and late evenings to manage the 13-hour time difference between Kobe and Pittsburgh). These included lectures, discussions, field study presentations, and project-based group work. The post-course phase conducted at each university included presenting the final report of the course and other wrap-up activities.

Details of the various tools used in the above three phases are detailed in Table 1.

Table 1: Tools used to deliver the program in multiple locations

Tools	LMS	ZOOM	LINE	PADLET	FLIP
Description	University of Pittsburgh's Learning	Group video communication platform	Mobile app for instant	Real-time collaborative virtual	Visual message board for

[4] Calculations by the authors.

	Management System (Canvas)		communications and messaging	bulletin board	video discussions
When to use	To house course materials and lecture recordings for synchronous sessions	To conduct lectures and group interactions for synchronous sessions	To support real-time communication between students and faculty	To organize and share materials used for group interactions	To record and view student introductions and reflections

For each of the three faces of the city- Resilient, Livable, and Sustainable - a number of field visit locations were identified in both Kobe and Pittsburgh that enabled students to understand the concept concerning their city (Kobe or Pittsburgh) and share their ideas online with students in the other city.

The field visits were combined with presentations and discussions with experts from the fields of urban planning, engineering, political science, members of city boards, historians, and others. Case studies of the two cities were also presented on the theme of resilience, livability, and sustainability.

The field visits, lectures, and discussions between students and experts created learning environments that enabled students to identify problems, conduct research, and propose several ideas to tackle the problems they observed.

4.4 Multi-Stakeholders

The COIL program identified early on that the need to involve a wide variety of experts and professionals, including ordinary citizens, was essential to make the program meaningful and in-depth.

As illustrated in Figure 4, with students themselves being a key stakeholder in providing opportunities to interact with each other (in group discussions and simulation games), the COIL program involved other stakeholders in both Kobe and Pittsburgh and included:

- University professors who delivered targeted lectures on various topics.
- Professional experts who explained key concepts to the students during the field visits.
- Local community leaders who provided a picture of their efforts to bring a broader range of issues into the communities they worked in.
- Ordinary citizens who interacted with students during field visit activities related to the urban issues explored in the course.

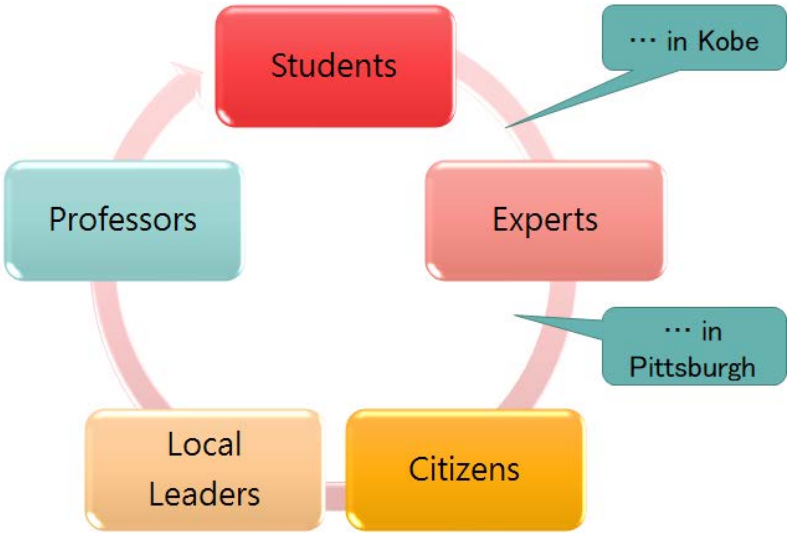

Figure 4: Multi-stakeholders in the COIL program

Some of the lessons learned by working with multiple stakeholders included:

- Enabling the power of the online environment as a supplement for study abroad programs, particularly with the challenges posed by the COVID-19 pandemic.
- Importance of integrated advising using a variety of individuals and views from professors, professionals, experts, community leaders, and ordinary citizens.
- Necessity to streamline and integrate technology to incorporate different viewpoints and experiences into the learning experience.

5. Evaluation of the COIL Program

A thorough evaluation of the COIL program, carried out in the form of a post-program questionnaire and focused group discussions, had implications for both Konan University and the University of Pittsburgh. These issues are outlined below.

5.1 Program Themes

The program themes selected for the COIL course served as key concepts to explore sustainable urban development and helped to guide the following main components of the course: lectures, field study, and final projects. Program themes (resilient, livable, sustainable) help students grasp Goal 11 of the Sustainable Development Goals (SDGs) proposed by the United Nations in 2015.

Implications for –

Konan University	**University of Pittsburgh**
The program themes fit well with the field study locations selected for Kobe City. Konan	The themes allowed for significant comparison between the two cities despite their very

students learned about new concepts that helped them learn how cities can become more resilient, livable, and sustainable in the future. In addition to lectures, instructors should provide information or resources about the program themes in Japanese at the pre-course lecture to prepare students adequately in advance of the core program.

different histories and socio-economic situations. Students commented that the program would be enhanced by including more case studies in both cities and early lectures on the histories of each city and that they would like further opportunities to learn about programs and projects in Kobe.

5.2 Lectures

Both universities provided three 30-minute lectures (one lecture on each of the three program themes) for a total of six lectures. Lectures were delivered by experts in Pittsburgh and Kobe and were followed by 30 minutes of class discussion. Lectures and discussion sessions were scheduled in six consecutive class meetings of the core program, and lectures on the same theme were scheduled in succession.

Implications for –

Konan University

Schedule time with Konan students after each class to summarize the lecture and answer any questions about the content presented. Provide a written summary of lectures in Japanese for students in advance of the lectures.

University of Pittsburgh

Students requested more opportunities to discuss lecture content with Konan students.

5.3 Student Exchanges

Exchange activities were scheduled to coincide with the initial four sessions of the only core program to promote interaction between students. Instructors selected activities to familiarize students in stages and guide them from introductory exchange to cultural exchange to academic exchange linked to program themes. Three out of four activities were conducted due to time constraints.

Implications for –

Konan University

Provide additional opportunities for students to practice English and proactively engage in class by asking questions at the pre-course lecture. Each student should then be encouraged to ask 3-5 questions to give students a chance to build basic communication skills, such as asking and answering questions in English during class.

University of Pittsburgh

Restrictions during COVID-19 limited interactions among students and hindered visits to field sites. Students commented that in future iterations of the class, they would like to meet in person and conduct fuller visits.

5.4 Field Studies

Instructors selected field study locations in both Pittsburgh and Kobe in parallel with the program themes. Three groups of Pittsburgh students (each group comprising two members) and four groups of Konan students (each group comprising four members) conducted a field study in their respective

cities. One group in Pittsburgh and four groups in Kobe conducted the field study in person at the field study site, followed by group work conducted remotely using communication tools to produce a 10-minute presentation on their field study experience. Group presentations were held during the first two classes of the core program.

Implications for –

Konan University	**University of Pittsburgh**
Provide students with more field study options. Monitor the progress of each group and schedule a rehearsal with each group to check content, presentations slides, and length of presentations before the start of the core program.	Increase class size to approximately 12 students to allow for fuller groups. Monitor each group's progress and review their slides and presentation protocol prior to the first full-group meeting.

5.5 Final Project

The core program's culminating final group projects provided an opportunity for students from Pittsburgh and Konan to collaborate in mixed groups and highlight what they learned during the core program. Students collaborated in groups to propose action plans that could make a community more resilient, livable, and sustainable. Each group consisted of one or two Pittsburgh students and three or four Konan students. Instructors assigned students to groups based on each student's participation in class during the core program to create well-balanced groups. Students collaborated in and out of class time to complete the final projects and prepare 20-minute group presentations to share their ideas.

Implications for –

Konan University	**University of Pittsburg**
Include an explanation of the final project at the pre-course lecture to prepare students in advance. Translate final project instructions in Japanese for students.	Make instructions more transparent about the scope of the project.

6. Conclusions

The introduction of the COIL model has brought about a range of outcomes and benefits, transcending specific faculties or fields of study. It has primarily focused on internationalizing the curriculum, offering students opportunities for cross-cultural and language exchange, and enhancing their understanding of self and others. The COIL content and design contributed to building international knowledge and experience by immersing students in virtual collaborations.

Some of the key lessons learned from the COIL program to help design future programs include:

- Adjusting curricular objectives and prioritizing varying student needs for the specific conditions of online learning.
- Examining individual and institutional technology readiness and choosing the most relevant and context-sensitive technological solutions.
- Preparing students for the new technological and content formats to ensure better participation and continuity in learning.

- Ensuring inclusion and active participation online and supporting varied individual levels of ability.
- Supporting teachers, lecturers, and other stakeholders to deliver content in an online environment, particularly with community leaders and citizens.
- Designing appropriate methodologies for the provision of online teaching to provide a variety of content in different formats.
- Planning for long-term learning and skills development – in terms of both technology and content of the learning programs.

The COIL approach has played a pivotal role in providing high-standard international education. It aimed to develop students' language proficiency, leadership abilities, communication skills, and effective management capabilities. As a result, students engaged in COIL experiences are poised to succeed in a globalized world where these competencies are crucial.

Additionally, the COIL program aspires to foster the next generation of global human resources by cultivating creativity, critical thinking, and media literacy—essential skills for navigating the complexities of 21st-century society. Furthermore, the method contributes to improving research endeavors by facilitating the establishment of new education and research partnerships, thereby fostering innovation and collaboration in academia. In essence, COIL emerges as a dynamic approach that not only enriches individual learning experiences but also prepares students to be adept global citizens with a multifaceted skill set.

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