

A Healthcare Systems Collaborative Online International Learning (COIL) Section between the University of Minnesota Duluth and Nottingham Trent University

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Abstract—Collaborative Online International Learning (COIL). COIL is a great way to aid students to assimilate towards different cultures, socioeconomic environments, and meet peers from around the world. COIL provides an opportunity for students to collaborate with other students and experts in their field of study. In this paper, we will show you one of our COIL projects that were developed and implemented through a course at the University of Minnesota Duluth (UMD) and Nottingham Trent University in Fall 2020. We will discuss what COIL is all about and some challenges that may be faced when implementing a COIL section. We will discuss our COIL section, including the technology used, and what was covered during our sections related to healthcare systems and alternative care. We will provide information from the course, and the pre-assessment and post-assessment results related to empathy, cultural geography, and cultural awareness. Finally, we will wrap up with information related to challenges that you may face as a COIL instructor partnered with a university in another country. The goal is to provide some detailed, beneficial information for people who are implementing COIL, in the hopes that you can form relationships and global opportunities without having to leave your home.

Keywords—collaborative online international learning, distance learning, higher education, cross-cultural learning

I. INTRODUCTION

A. What is COIL

Collaborative Online International Learning (COIL) is a way to create an at-home international experience for students and faculty with other universities around the world [1]. The State University of New York's (SUNY) SUNY COIL Center, which "pioneered the COIL model more than 15 years ago," describes COIL as a collaboration that provides important opportunities for global experiences and enhances intercultural interactions between students in a cost-effective way for universities [2]. COIL has three main components: pedagogy (design education), technology, and cross-cultural learning. COIL

creates a team-taught learning environment where faculty members from different cultural backgrounds work together to develop a shared syllabus. This experience gives students opportunities to learn about different cultures and the way their country's healthcare system compares to the United States.

Collaborative Online International Learning (COIL) is an innovative teaching strategy that has proven to benefit students and faculty at universities across the world. The program's format can lead to student engagement in different cultural aspects that can provide pedagogical benefits in areas of study. This experience provides students with meaningful and rewarding opportunities to work with students around the world. It provides engagements with foreign cultures that can help us reach our internationalization goals.

B. Why COIL

There are many reasons why more universities should consider implementing COIL. Students will learn more about diverse cultures to enhance their intercultural competency skills, and it can help students and faculty understand and develop intercultural awareness [3]. It will enhance international relationships; students can learn about the discipline they are studying from another perspective [3]. Furthermore, students want the flexibility to engage in learning from their iPads, smartphones, and laptops virtually anywhere [3]. In an increasingly globalized world, it is imperative that students have a level of cross-cultural awareness and understanding. As Fox and Hundley point out, globalization is a crucial concept for students in higher education to understand because of the demand in business and industry for employees with the knowledge needed to work with others from different nations and cultures [4]. COIL helps with active learning and constructive processes. The program also teaches students not only to learn information passively or actively but helps students become critical thinkers in the learning process. Students will be able to "reflect on their own perceptions, assumptions, and new understandings, and those of their peers" [5]. This experience will provide students with meaningful, rewarding opportunities to work

with other students across the world. It will also help enhance students' skills to relate positively to diverse worlds.

C. Study Abroad

There are many benefits you can gain from studying abroad that you can't get anywhere else. Students get to see the world and experience new customs and activities. Through a different education system, students experience different styles of learning. Studying abroad is a great opportunity for students to really dive deep and understand the people, their traditions, and their culture. It is also a great opportunity for personal development; students become explorers in a new environment and their curiosity and excitement will drive them to learn more about the world. However, not all students have the resources and opportunities to study abroad. According to the Institute of International Education, only 347,099 students studied abroad for academic credit in the 2018–2019 school year [6]. In comparison, there were 18.9 million enrolled in college in 2018 [7]. COIL provides students who may not have the chance to study abroad the opportunity to reap the benefits of studying abroad while remaining in their program of study.

II. COLLABORATION BETWEEN NOTTINGHAM TRENT UNIVERSITY AND UNIVERSITY OF MINNESOTA OF MINNESOTA DULUTH

During a six-week period with two weeks set as the collaborating period, a Global Health course at Nottingham Trent University (NTU) and a Consumer Health course at the University of Minnesota Duluth (UMD) collaborated to run a COIL section. The key concepts of focus were:

- Introduction Google Meets video conference call between the two classes
- Health focus on Diabetes type 1 and type 2
- Activity: Solve the Outbreak
- Video: El Susto Film & Discussion

The key forms of communication between NTU and UMD students were the introduction video session done synchronously, Google My Maps, and Padlet. Using these forms of communication allowed the students to engage in learning about different healthcare systems, the chronic diseases of diabetes type 1 and type 2 in each country, and examples of cultural geography.

III. TECHNOLOGY

To begin the COIL section, NTU and UMD set up a google meets call to complete introductions. This was done during week two as week one was used to prep students on the outline for COIL. Since this was done during the lockdown of the COVID-19 pandemic in Fall 2020, all students were already completing distance learning. UMD primarily uses Zoom for video conferencing, but NTU does not use this platform due to security reasons. The decision was made to use Google Meets because both universities used Google as a regular platform and had access to it without downloading any

other software. There is a six-hour time difference between Nottingham, UK, and Duluth, Minnesota. Although this time difference can be a barrier to establishing synchronous meetings, we were able to find a time where one class began, and the other was ending to set up a short video conference for introductions.

During this meeting, both classes were introduced to COIL. In this call, both instructors covered what COIL is, how this section would be covered, and expectations. After each instructor was introduced, students did their introductions. Although not all the students were present to introduce themselves, the student introduction piece allowed students to meet some members of their groups. This call was roughly 35 minutes and went over the next steps with a Google document that provides more detailed information on how the COIL section will run.

The next steps included contacting all members from each group and going over the tools being used. On the UMD side, a TK leader was set to aid in communication and activities done between all those involved. Communication was key to keeping groups on track. Each group member began to add information to the Padlet. On the Padlet board, each group member had to include their name, a picture, their location, a description of what they view as cultural geography related to their location, and a reflection at the end. Students were instructed to add pins to a Google My Maps that each group created.

Where are you from? Where have you traveled (3 pins max)? Visit each other's pins to learn about each other and their university/city.

This served as a visual aid with locations and brief descriptions of travel and origins for each member. This map helped students to learn more about their group members' diverse, multicultural backgrounds. Each member added the pins and provided a brief description related to the location. After posting, each student then read about the others in the group. An example of a My Map can be seen in Fig. 1.

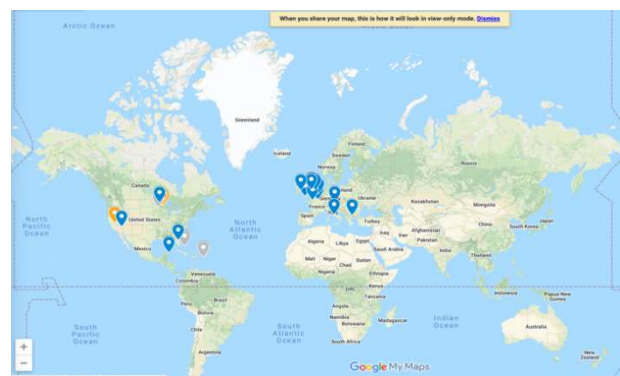


Figure 1. Student google my maps showing location pins from students related to key points.

During this session, there were multiple students on a registered nursing track at NTU. The lecturer from NTU wanted to incorporate a section that focused on chronic disease and health. The chronic disease chosen was Type 1 and Type 2 Diabetes and we decided to use two different platforms to provide both a visual step-by-step and an

educational video. The first resource for learning was through the Center for Disease Control and Prevention (CDC) using its Solve the Outbreak platform [8]. This platform from the CDC allows users to choose between level 1 and level 2. This site then provides different scenarios that users must go through and solve the scenario through the necessary steps. The scenario chosen for this COIL session was Up Sick Creek [8]. Each student completed the scenario and answered the questions seen in Table I.

TABLE I. THE QUESTIONS BEING ANSWERED BY STUDENTS FOR THE SOLVE THE OUTBREAK, UP SICK CREEK ACTIVITY FROM THE CENTER FOR DISEASE CONTROL AND PREVENTION

Questions provided to students to have students apply learning materials to their own country and global issues.	Q1 – What tools did you learn are used to gather data around global health problems?
	Q2 – Do you think collection of data and disease protocols are different in your respective countries? Why or why not?

After answering the questions individually, the groups had to come together and summarize their answers, finding common points through the answers. This platform and part of the COIL project gave students an opportunity to use problem-solving skills, understand different environments and cultures, and assess the student's skills and knowledge to solve the outbreak.

The next and final area of technology used was the El Susto film. After watching the film, students were asked to participate in a question session that then could be added to the final submission PowerPoint. The El Susto Film was about the availability of Coca-Cola products and the rise in Type 2 diabetes in Mexico. The first objective of this activity was to have students think about large-scale policy change; The second objective was to better understand the health of the population and alternative care healers used in Mexico with a comparative analysis to alternative care in their own country. The questions for this activity can be seen in Table II.

TABLE II. QUESTIONS RELATED TO THE EL SUSTO FILM THAT STUDENTS ANSWERED AND INCLUDED IN THE FINAL SUBMISSION POWERPOINT

Questions provided to students to better understand the knowledge gained related to the El Susto Film and how to apply in their own country.	Q1 – How can your own country's policies change to lower the risk of type 2 diabetes on a large scale (think beyond the individual but on the policy). <i>Example Information</i> – Coca-Cola spends 1.2 billion annually on marketing its products. This is more money than most countries have to aid in health disparities.
	Q2 – What organization in health services that protect consumers could help with this policy change? Why?
	Q3 – How does the prominent use of alternative healers in Mexico compare to the perception of alternative healthcare methods in your country?

IV. RESULTS

Through this COIL section, we wanted to collect data about what the students are learning from the collaboration. To do this, we included a Qualtrics pretest and posttest

measure that provided some details related to the understanding of cultural geography, cultural self-awareness, empathy, and general knowledge of cultures (e.g., politics). Through the pre-assessment and post-assessment, we were able to identify the areas for improvement. The Qualtrics survey is based on the Intercultural Knowledge and Competence VALUE Rubric set forth by the Association of American Colleges and Universities [9] to measure outcomes. Each question was rephrased to aid student understanding. The pre-assessment consisted of eight questions that checked for an understanding of terms and areas related to cultural geography and a desire to learn more about other cultures. The post-assessment consisted of twenty questions that allowed for further identifiable measures. The majority of the questions were quantitative, but the post-assessment included one question that gave students an opportunity to provide feedback related to the COIL experience.

One of the pre-assessment questions: *which statement best reflects your cultural self-awareness*, showed that 65.63% of students said that they recognize other people from other cultures have different perspectives (including values, biases, and rules), and look for new experiences that teach them about those cultures. The post-assessment for the same question showed that 55% of students felt they recognized other people's cultures. This could be explained through the discovery process of the COIL that students began to further understand what they perceive they know versus what is truly understood after speaking with individuals from other cultural backgrounds. Another pre-assessment question, *how would you describe your level of knowledge about what is important to people from other cultures (e.g., their history, values, politics, communication styles, economy, or beliefs)*, found that 37.50% of students stated they have an adequate understanding of the important elements of cultures different from their own. In the post-assessment, 60% of students said they have an adequate understanding of the important elements of cultures different from their own in the same question.

The question *which statement best reflects your openness to interact with people from other cultures*, was asked to students and 50.00% of students said they worked to initiate interactions with people from other cultures, and rarely judge people, behaviors, or customs that are different from my own. The same question was asked in the post-assessment and 60% of students stated they work to initiate interactions with people from other cultures, and rarely judge people, behaviors, or customs that are different from their own. Students were able to listen to culture and healthcare in the United Kingdom and the United States, but also through personal experiences from students who come from different cultural backgrounds and countries.

Students provided randomized feedback related to participation in COIL at the end of the section. One student provided the following information through Qualtrics: "In fall 2019, I participated in COIL. At first, it was a bit difficult to manage because the time zones were different and communication was a bit rough at times, but over time

we were able to get a routine down. Towards the end of the project, I really enjoyed being a part of COIL. It was fascinating to see how different parts of the world operate. It made me want to learn more on how things are run over there compared to how we do it in the U.S.”.

Which statement best reflects your cultural self-awareness?

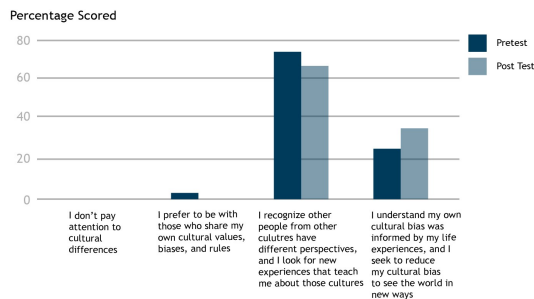


Figure 2. The results from pretest to posttest for students participating in COIL for cultural self-awareness.

Which statement best reflects your empathy toward other people?

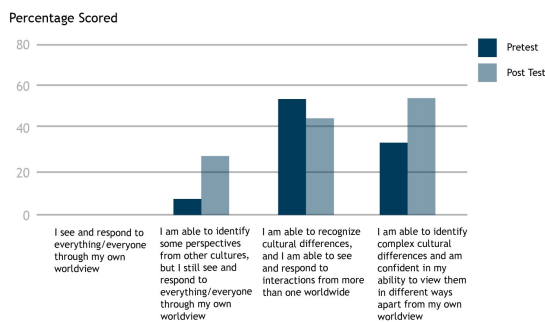


Figure 3. Results from pretest to posttest for students participating in COIL for empathy toward other people.

Which statement best reflects your openness to learning about and sharing with people from other cultures?

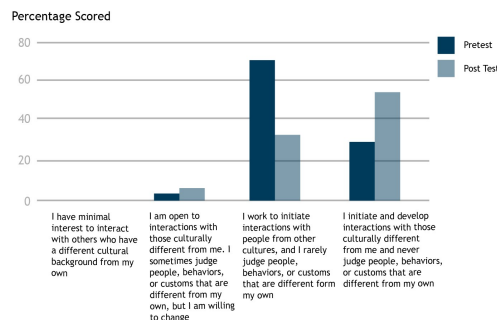


Figure 4. Results from pretest to posttest from students participating in COIL for openness to learning about and sharing with people.

In Fig. 2, the question asked was related to cultural self-awareness. Students showed improvement from pretest to posttest as to being culturally aware and understanding bias that we carry sometimes toward other cultures or groups. In Fig. 3, students showed improvement from pretest to posttest in their empathy towards others that are from different cultures and groups than themselves. We

also wanted to identify students’ levels of openness to learn about and share with those from a different culture. The results can be seen from pretest to posttest in Fig. 4 showing that students have more openness and desire to learn and share compared to pretest.

V. CHALLENGES

Students who take the opportunity to study abroad face many challenges. A few barriers students will face include language barriers, cultural shock, and reverse cultural shock [10]. Language barrier occurs when people don’t speak the same language which can make communication hard at times. “Using visuals like photographs, drawings, diagrams can help to overcome language barriers as can using appropriate non-verbal communication” [11]. When experiencing a new culture and traveling to a new area most people will go through cultural shock. Cultural shock is when someone has the feeling of disorientation due to a new environment and is unfamiliar with the culture, way of life, or set of attitudes. It can take up to six to twelve months to adjust to the new environment. When students return home, they may experience reverse culture shock. Reverse culture shock is where the student may have a hard time adjusting back to their “normal” life.

There are a few challenges that come with COIL, but one of the biggest challenges COIL may have been the different cultures between the countries. “Culture needs to be considered when working collaboratively because much of what we’ve learned, perceive, and believe is learned within the social context of culture” [12]. Doing some research beforehand can greatly help reduce the culture shock between the countries. Students will learn to be more culturally sensitive and aware when working with different cultural groups. Since students are working with other students around the world it is important to consider the different time zones. This can make communication a bit difficult since there can be a specific time frame where both parties can respectfully communicate with one another. Since COIL is mostly online both parties should make sure they have the same or similar learning management system. Communication is key in everything we do, especially when working with people around the world.

VI. CONCLUSION

COIL continues to grow in use globally. There have been grants specifically created to continue the growth and show the importance of use. For instance, Fulbright Commission, United Kingdom created a Global Challenges Teaching Award that currently offers two annual awards to collaborating universities (US/UK) to complete a COIL section [13].

COIL allows us to learn more about different cultures around the world, provides engagement with foreign cultures that can help us reach our internationalization goals, and expands our knowledge about our international networks. Studying abroad is a fantastic opportunity for the students who have the chance to do it. COIL can provide an enriched cultural experience to all students in

just about any subject. COIL has possibilities for completion, the primary need is collaborative partners with similar curriculum goals and good communication. COIL continues to grow in the field of academia as more instructors learn about its use and how to implement it. Finding collaborative partners can be a challenge but once you find a partner, the opportunities to run a COIL section and engage students in different cultural aspects are endless.

CONFLICT OF INTEREST

The authors declare that this work has no conflict of interest.

AUTHOR CONTRIBUTIONS

Marzell Gray conducted the COIL, wrote the paper, and collected, and analyzed the data. Mya Ngo acted as an undergraduate research assistant who participated in the literature review and aided in data analysis. All authors have approved the final version.

REFERENCES

- [1] A. O. Asojo, Y. Kartoshkina, B. Jaiyeoba, *et al.*, "Multicultural learning and experiences in design through Collaborative Online International Learning (COIL) framework," *Journal of Teaching and Learning with Technology*, vol. 8, no. 1, pp. 5–16, 2019. doi:10.14434/jotlt.v8i1.26748
- [2] *Welcome*. [Online]. Available: <https://coil.suny.edu/>
- [3] D. A. Folkers, "Competing in the marketplace: Incorporating online education into higher education – An organizational perspective," *Information Resources Management Journal*, vol. 18, no. 1, pp. 61–77, 2005.
- [4] P. Fox and S. Hundley, "The importance of globalization in higher education," *New Knowledge in a New Era of Globalization*, 2011.
- [5] P. Appiah-Kubi and E. Annan, "A review of a collaborative online international learning," *International Journal of Engineering Pedagogy (IJEP)*, vol. 10, no. 1, p. 109, 2020. doi:10.3991/ijep.v10i1.11678
- [6] International Students in the U.S. (2000). [Online]. Available: <https://opendoorsdata.org/wp-content/uploads/2021/11/Fast-Facts-2010-2020.pdf>
- [7] US Census Bureau. (December 3, 2019). Census Bureau Reports Nearly 77 million Students Enrolled in U.S. Schools. [Online]. Available: <https://www.census.gov/newsroom/press-releases/2019/school-enrollment.html>
- [8] Center for disease control and prevention. (2020). [Online]. Available: <https://www.cdc.gov/mobile/applications/sto/web-app.html>
- [9] Intercultural knowledge and competence value rubric. [Online]. Available: https://www.umass.edu/oapa/sites/default/files/pdf/tools/rubrics/in-tercultural_knowledge_and_competence_value_rubric.pdf
- [10] J. Khanal and U. Gaulee, "Challenges of international students from pre-departure to post-study," *Journal of International Students*, vol. 9, no. 2, pp. 560–581, 2019. doi:10.32674/jis.v9i2.673
- [11] K. U. Rani, "Communication barriers," *Journal of English Language and Literature (JOELL)*, vol. 3, no. 2, pp. 74–76, 2016.
- [12] D. L. Nelson and J. C. Quick, *Orgb: Organizational Behavior*, 4th ed., Stamford, CT: Cengage Learning, 2015.
- [13] Global Challenges Teaching Awards | US-UK Fulbright Commission. [Online]. Available: <https://www.fulbright.org.uk/global-challenges/global-challenges-teaching-awards>

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Marzell I. Gray, DrPH, MBA, began as a term faculty and once his doctorate was complete moved into his current role as a tenured track Assistant Professor in the Public Health program at the University of Minnesota Duluth (UMD) campus. Gray holds several certifications in exercise, nutrition, and health coaching and currently sits on a subcommittee as a Chair for a certificate related to physical activity and public health. Gray's current areas of research include perceptions of mental health services for young adults, smoking cessation using peer-to-peer coaching, and Collaborative Online International Learning (COIL). Gray currently has collaborative research with Universities in the United Kingdom and Uganda.



Mya Ngo graduated from the University of Minnesota Duluth with a bachelor's degree in Public Health in 2021. During my years in college, Ms. Ngo worked as a research assistant and teacher assistant for two years with Dr. Gray. Mya Ngo currently works as a case manager at a non-profit and continues to learn more about mental health, nutrition, and holistic health.