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A Qualitative Study of Learning Outcomes in a Collaborative Online International Learning (COIL) Project Implementation

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Abstract. Consistent with the relevance of virtual and multicultural teams in global organizations, educators are incorporating newer instructional methods that promise to internationalize the curriculum. The Collaborative Online International Learning (COIL) is a format increasingly being used by educators to introduce new, global experiences into the traditional higher education classroom. In this study, we outline a COIL project endeavor which evolved iteratively, engaging 221 college students in 39 teams over a series of semesters. Utilizing an established partnership between a US and Dutch university to launch the program, the initiative was later expanded to integrate additional universities in subsequent phases. The project design integrated Agile methodology and learner-centered principles, with key project structural elements adapting incrementally in response to student learning and feedback. The implementations yielded notable gains in virtual teamwork skills and intercultural learning, while also surfacing insights into the generational attitudes relevant to the evolving nature of global teamwork.

Keywords: global virtual teams (GVT); cultural intelligence, business skills, thematic analysis, agile project, stakeholder analysis, experiential learning, global learning.

1. Introduction

In an interconnected global environment where technological advancements are increasingly digitalizing collaboration and work processes, Global Virtual Teams (GVTs) have become a preferred form of collaboration in organizations (Neeley, 2015), increasing the significance of virtual team skills, intercultural and global competences (Schworm et al., 2017; Organization for Economic Co-operation and Development [OECD], 2018; European Commission, Education and Culture Executive Agency, 2021; World Economic Forum [WEF], 2024). Given that at least 89% of corporate employees participate in at least one GVT (Gilli et al., 2022), organizations seek graduates who can communicate, work and think collaboratively in multicultural contexts, and even expand business opportunities globally (Livermore & Soon, 2015; Krumm et al., 2016). Although cross-cultural education offerings span a spectrum – from classroom-based instruction and case studies to more immersive experiences such as short-term study trips or a full semester of study abroad (Larson & Baburaj, 2020) – gaps remain in employees' abilities to work effectively in global and cross-cultural contexts (Azevedo & Shane, 2019). International virtual exchange programs such as Collaborative Online International Learning (COIL) aim to address gaps in cultural readiness by integrating early, practice-oriented exposure to GVTs within students' educational experiences. Moreover, the COIL model democratizes global learning and enables pedagogical innovations (Ferreira-Lopes & Van Rompay-Bartels, 2020; Shinnar & Chang, 2025), as evidenced by the growth of COIL based pedagogy and research since the COVID-19 pandemic (Hackett et al., 2024).

Collaborative Online International Learning (COIL) is a pedagogical approach where faculty from a limited number of universities located in different countries collaborate to co-design and co-facilitate customized learning experiences in GVTs for the participating university students (Rubin, 2017; Nava-Aguirre et al., 2019; Liu & Shirley, 2021; Vázquez-Villegas et al., 2024). Although COIL project experiments are being adopted globally, our understanding of the design, delivery and assessment of impact on student learning is still evolving (Hackett et al., 2024; Vázquez-Villegas et al., 2024). Recent works suggest that intercultural learning outcomes in COIL implementations are not always evident (Fukkink et al., 2024), and other evaluations indicate that not all students derive equal benefits from cultural-awareness interventions (Kadam et al., 2020, Hackett et al., 2023). Relatedly, much of the existing COIL literature assesses impact primarily through survey-based instruments or single-case studies. In contrast, studies that systematically examine learning within COIL contexts and apply thematic analysis across iterative implementations remain scarce. Moreover, there is a need for an integrated approach to COIL design, in which discipline-specific content is complemented by explicit emphasis on intercultural learning, through proactive

instructional design (Fukkink et al., 2024). Thus, further empirical explorations are needed to generate deeper insights into COIL design and its impact on desired learning outcomes. In addition, although a substantial literature exists on virtual exchange and GVTs, this work has not been systematically integrated into COIL research, a gap this study begins to address. Motivated by these ideas, the study addresses the following research questions:

- How does COIL facilitate learning in global virtual teams?
- How does COIL facilitate cultural intelligence development?
- What are the challenges faced by students and instructors in COIL implementations?
- What is the overall attitude of students with COIL experiences?

The study aims to advance COIL scholarship and pedagogy by making several contributions. First, we develop, explore, and share a model of COIL – one that evolved through successive iterations over multiple semesters – such longitudinal studies on COIL are few, if any. Importantly, the design incorporates Agile project development principles adapted to the COIL context, with a feedback driven iterative refinement of the project. This is one of the first studies, particularly in the field of business education, that engages Agile principles in COIL design and delivery. Largely relying on one-time implementations, prior work is limited in the responsiveness to learning feedback, constraining refinement. Further, our COIL design creates an integrated learning experience pairing discipline specific learning content with cultural learning, through choice of appropriate problems, assignments and theories that are meaningful for the curricula for all COIL participants. Third, this study contributes to COIL research by deploying a robust method to conduct an in-depth examination of impact across multiple dimensions of global virtual teamwork. While a small number of studies demonstrate mixed-method (Hackett et al., 2023; Vázquez-Villegas et al., 2025) or qualitative (Ballesteros-Sola & Magomedova, 2023; Yousef, 2024) approaches, their systematic application remains limited. Moreover, these studies do not incorporate findings from the broader GVT and Virtual Teams literature into their coding frameworks and are limited to single time-point data. Building on this foundational work, we conduct a systematic thematic and sentiment analysis on data collected over multiple time periods, enabling a more robust and iterative examination of COIL outcomes. A further contribution is a comprehensive compilation of supplementary materials, enabling interested faculty to build upon our work.

In the following sections, we first conduct a targeted review of pertinent COIL literature and GVT studies to identify enablers and barriers to student learning and team effectiveness. These insights informed the design of the COIL project. By integrating them into the project development process, we sought to enhance student engagement and create an environment conducive to meaningful, discipline-specific learning, while simultaneously enabling productive cultural interactions among participants. Building on this, we next discuss the conceptualization and longitudinal implementation of the COIL

project. The methods section presents an overview of the sample and procedures used for a qualitative assessment of project outcomes. We conclude with a discussion on the implications of the findings.

2. Literature Review

COIL leverages advancements in electronic communication technologies (ECTs) to engage geographically dispersed partnering institutions in collaborative project-based learning, co-created by partnering faculty in a shared area of interest (Rubin & Guth, 2023), allowing students to engage with multicultural peers abroad (Hackett et al., 2023; 2024). COIL-based courses promote active, reflective, and experiential learning by enabling students to interact repeatedly in cross-cultural GVTs (Shinnar & Chang, 2025). Notably, COIL models are embedded within the curriculum and participating students do not pay extra fees (Hackett et al., 2024). Examples of COIL activities include VR technology based shared cultural exchange virtual tours involving engineering students from US, Indian, German and Brazilian (Liu & Shirley, 2021); an online international buddy project between students in Portugal and Thailand (Simões & Sangiamchit, 2023), and a multinational company case analysis involving students from Taiwan and USA (Shinnar & Chang, 2025), among others. Ballesteros-Sola & Magomedova (2023) report on a COIL project in a Social Entrepreneurship course where student teams created a full impact business model canvas for community partners. The study emphasizes aligning pre-COIL course contents to ensure comparable starting knowledge among students and finds that uncoordinated teaching approaches may have contributed to student confusion.

Studies have documented the use of icebreakers, including instructional videos and short video-based self-introductions, sometimes using platforms such as Padlet and Moodle groups during the initial phases of collaboration (Ferreira-Lopes & Van Rompay-Bartels, 2020; Hackett et al., 2023; Shinnar & Chang, 2025) to support team-bonding and trust. In the broader Virtual Teams literature, lead-in activities have been found to enable personal and professional familiarity (Maynard et al., 2019), and reduce perceptions of within-group differences, assisting in the development of a team identity. Most empirical research on COIL projects is case-study or survey-based, with few studies using quasi experimental and/or mixed method design (e.g. Hackett et al., 2023, Vázquez-Villegas et al., 2024).

Learning Outcomes

Cultural Intelligence (CQ), defined as an individual's capability to function effectively in culturally diverse settings has been conceptualized as a multidimensional construct (Earley & Ang, 2003). CQ reflects the ability to acclimate, relate to, and work effectively in unfamiliar and culturally diverse