Collaborative Online International Learning: A Reflexive Thematic Analysis of Narratives from the Metaverse

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Abstract: The metaverse is a digitally created virtual world that can be explored through extended reality, allowing individuals to engage with one another using avatars. As the metaverse becomes more widely used, it is becoming increasingly important to comprehend its impact on individuals and society. This paper presents a case where the metaverse was used to evaluate collaborative online international learning (COIL) activities while empowering participants by showcasing their creativity as contributors to the open educational resources collective through virtual exhibits. The exhibitors were participants in a COIL initiative involving online activities that aimed to facilitate cross-cultural exchanges and global learning among universities in three countries: the USA, Japan, and the Philippines. Data collected from 82 virtual exhibits in the metaverse were analyzed using reflexive thematic analysis, revealing benefits related to cultural exchange, personal growth, and positive learning experiences. Furthermore, reflections collected from the virtual exhibits were more profound and expressive than text-based platforms, suggesting that creative processes in visually stimulating environments like the metaverse could promote critical and out-of-the-box thinking among individuals.

INTRODUCTION

Student exchange programs are well-known implementations of the internationalization of education. Studies found that these programs greatly enhance the student's professional and employment opportunities (Marciniak & Winnicki, 2019) by expanding their networks (Diem, Thinh, & Mung, 2023). During the Second Industrial Revolution, student exchange programs were deemed prohibitively expensive. They required students to travel long distances and look for accommodation while staying at their host institution abroad. However, virtual exchanges made the world smaller with the swift evolution of information and communication technologies and the eventual transition to the 3rd and 4th industrial revolution eras. Collaborative online international learning (COIL) is a well-known

initiative that universities worldwide have swiftly adopted, especially during the COVID-19 pandemic (Ikeda, 2022; Komatsu, 2023).

REVIEW OF RELATED LITERATURE

Collaborative Online International Learning

COIL is an economical approach to international education that promotes cross-cultural collaboration and virtual exchange among students from different countries. It uses low-cost digital technologies to connect students and faculty across international borders, nurturing intercultural understanding and enhancing the learning experience (Appiah-Kubi & Annan, 2020; Rubin, 2017; Vahed & Rodriguez, 2021).

COIL provides students with exposure to different perspectives, the opportunity to develop intercultural communication skills, and the chance to work collaboratively on global issues. Through virtual collaborations, students can gain insights into various cultural contexts, challenge their presumptions, and cultivate empathy for others.

An exemplar of COIL is the Virtual Exchange Program that the Soliya organization created (Elliott-Gower & Hill, 2015). Through online video conferencing platforms, Soliya's program gathered university students from around the globe. Facilitating cross-cultural dialogue and the investigation of global issues, participants engaged in structured discussions on various topics.

Another example is the COIL Initiative at the State University of New York (SUNY). The SUNY COIL Initiative connected SUNY faculty and students with international partners for virtual collaborative initiatives. These projects entailed collaborative coursework, research, and problem-solving to promote intercultural learning (Rubin, 2017).

The Trans-Pacific Collaborative Online International Learning (TP-COIL) project was another government-funded initiative involving COIL activities that fostered cross-cultural collaboration and exchange between institutions in the United States and the Asia-Pacific region, especially in East Asia. Initiatives under this TP-COIL project utilized digital technologies to facilitate virtual connections and collaborative educational endeavors between students and faculty from participating institutions. They include video conferencing like Zoom, virtual learning environments, and other community platforms like *Discord*. These technologies allowed students and faculty to engage in synchronous and asynchronous interactions, facilitating meaningful cross-cultural exchanges and collaborative learning opportunities.

From the experience and research conducted on these COIL initiatives, it was further established that COIL could contribute to the internationalization of education by providing students with opportunities to learn about various cultures, practice speaking a global language, and engage with students from universities abroad, which could eventually motivate them to engage in study abroad programs (Anzai & Shimizu, 2022; Rubin, 2017).

Diversifying Collaborative Online International Learning Initiatives

However, many COIL projects, specifically the TP-COIL initiative, only included universities in Global North countries like the US and Japan. In 2022, a public university from the global south, the Philippines, informally joined the project. Aside from being in a developing country, it was also an open university with distance education as its mode of delivery. This added a new layer of diversity to the collaboration. This initiative became a deliberate attempt to solicit ideas from learners from the global south and empower them to share knowledge and participate in academic discussions on various issues in education and technology with their peers from the US and Japan. Interestingly, these countries also occupied the Philippines several decades ago, contributing to the colonial mentality ingrained in the Filipino psyche, even among academics (David & Okazaki, 2006; David & Okazaki, 2010). Aside from the new composition of the COIL group, an emerging technology was also included in helping students express their ideas and reflections from the collaborative effort: the metaverse.

The Metaverse

The metaverse is an evolving concept that may have different operational definitions depending on the field of study utilizing it. In the educational sense, the metaverse is a three-dimensional immersive virtual space where users can interact with digital objects and other users through their avatars in real-time. This environment can also be experienced through virtual reality (VR) or augmented reality (AR). It presents learning opportunities that are both creative and interesting, which gives it great potential to revolutionize the educational system. The educational

experiences of individuals can be improved in various ways within the metaverse, including increased interest in the activity (Mangubat, Dancalan, Habito, & Figueroa, 2024). Students may be allowed to actively connect with the educational resources they are using because the metaverse is both dynamic and interactive. They can perform actions such as manipulating items, conducting experiments, and participating in simulations that would be difficult or impossible in the real world. In addition to this, the metaverse encourages inclusiveness as well as worldwide collaboration. Students worldwide can communicate and collaborate in the same virtual space, removing existing barriers. According to Bell (2018), this fosters cultural interaction, the investigation of many points of view, and the development of a robust learning community among the students.

Platforms like FrameVR show how the metaverse offers a wide range of potential for educational endeavors. Its immersive and interactive character promotes hands-on learning experiences, worldwide collaboration, inclusive educational environments (Brown, O'Hare, & Donnelly, 2020), and a sense of community among students. It may be a handy tool to draw out more profound ideas from students engaging in new initiatives such as COIL.

Objective of the Study

While many COIL initiatives utilize various digital platforms, the literature is lacking regarding the narratives of initiatives involving the metaverse, especially when participants are from the Global South. It could be because of the novelty of the technology and its learning curve for teachers and learners who are not yet accustomed to this kind of technology. However, learners who have been used to the fast-evolving digital platforms at an open university, despite being in a developing country, may have the advantage of developing skills related to fast technology adoption, enabling them to utilize novel technologies like the metaverse. These assumptions led to the objectives of this paper, which are the following:

1. To describe the empowerment experienced by Filipino students through COIL activities
2. To enumerate challenges encountered by Filipino students during COIL activities
3. To compare the capability of the metaverse as an avenue for critical reflection

METHODOLOGY

Participants

The five universities were comprised of three from Japan: the International Christian University (ICU), Aoyama Gakuin University (AGU), and Tokyo University of Foreign Studies (TUFS), one from the USA: the University of California Irvine (UCI), and one from the Philippines: the University of the Philippines - Open University (UPOU). ICU and UPOU followed a trimestral calendar, while AGU, TUFS, and UCI followed a semestral calendar. Students of courses taught by collaborators from these universities participated in the COIL initiative. However, this paper only presents perspectives from students who participated at UPOU through their creative exhibits in the metaverse and on their chat community in *Discord*.

COIL Activities

The COIL process, illustrated in Figure 1, started in early June 2022 when the instructors aligned their class schedules for the autumn term and decided which activities would be used for collaboration. At least two meetings happened between and among the instructors involved in the COIL collaboration. The first meeting determined the schedule of the COIL activities. These activities also had to match the learning objectives in the modules that included them. Asynchronous and synchronous meetings were also plotted in the shared calendar. The platforms to be used were also chosen. Onboarding was also conducted among instructors who were not familiar with some of the platforms, such as *Discord*.

In the first few weeks, the concept of COIL was introduced to students. In UPOU, they were also taught how to use the *Discord* platform. It was used as a venue for the course's asynchronous discussions instead of the traditional forums in the university's Learning Management System (LMS). When the *Discord* COIL community was created, they knew how to navigate the platform and interact with other learners. The first assignment given to students was to develop a ten-second video about what they had learned from an online video platform. It was timely as the memories of being on lockdown or having limited physical interactions were still fresh during this period.
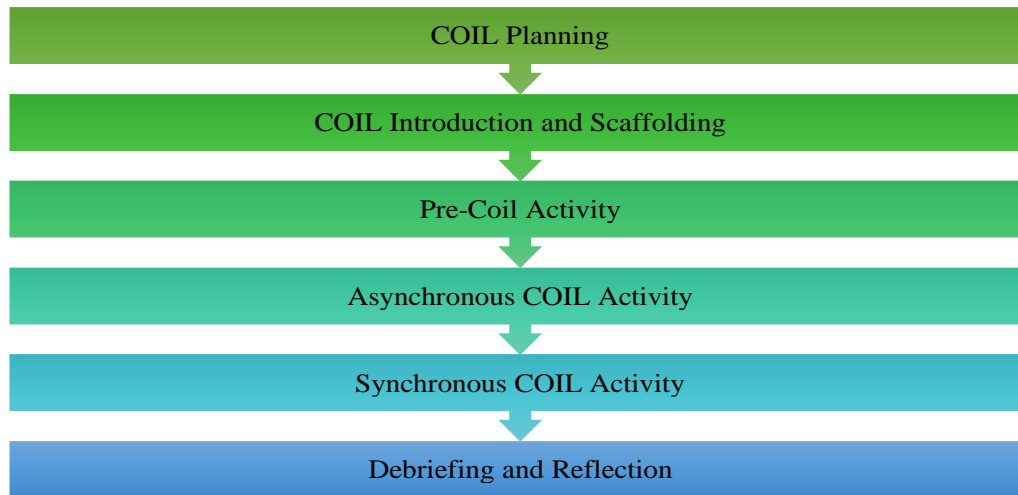
Figure 1. COIL process among the five universities

The students were then assigned to groups of five. These groups joined other groups of five from each participating university. In four weeks, they shared their videos on their respective channels and exchanged ideas about them. This was where most intercultural communication happened because UPOU students could identify similarities and differences between their culture and Japanese and American counterparts. Several weeks were given to allow free interaction among students, while specific topics were given as prompts for discussion.
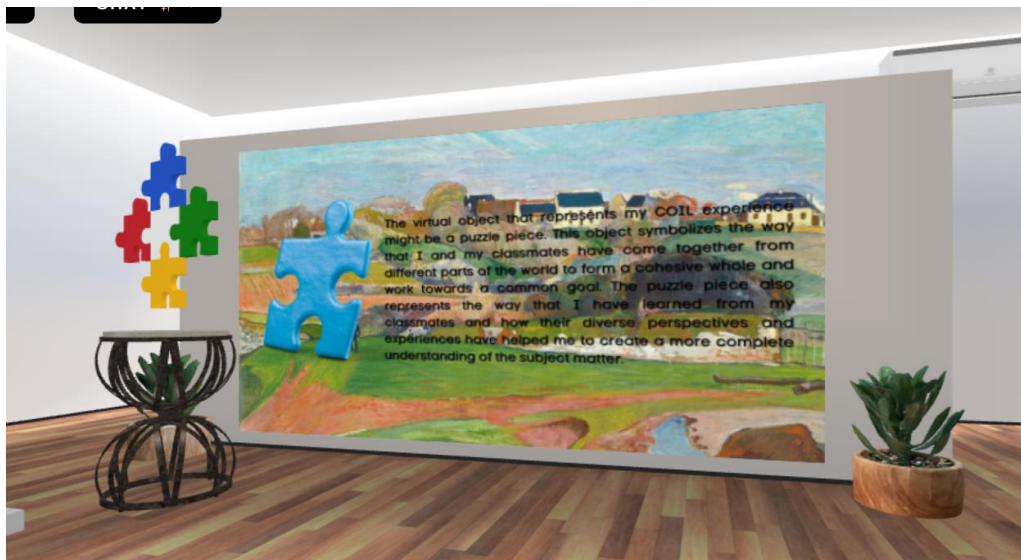

Figure 2. A student describing a puzzle piece as the best representation of their COIL experience

A culminating synchronous activity via Zoom was scheduled at the end of the COIL period. It was optional for UPOU students to attend this synchronous session. Around twenty of them participated in this event. One of the instructors reviewed what COIL was all about and what the activities were designed for. He then randomly assigned students into break-out groups. A discussion outline containing three items was posted in each group. First, the students were asked to introduce themselves to the group, including their university and their major in the programs. Second, they were asked to share their thoughts and impressions about the video-making activity. Finally, they were

asked to share their thoughts and feelings when viewing the videos made by their peers from other universities. The synchronous activity concluded with many lessons and insights from student feedback and reflections.

Finally, the UPOU students were taught how to manipulate a metaverse environment called FrameVR. After they were trained to use it, they were asked to create an exhibit containing some of their works, as this became their digital portfolio. They were also encouraged to include digital objects reflecting what they had learned from the course and their thoughts and feelings about the COIL activities (Figures 2 and 3). As part of the openness ethos, they were encouraged to use the Creative Commons license in their projects so that the exhibits could also become open educational resources (OERs). It was, however, optional, and not everybody published their exhibits under the said license.

Figure 3. Student Selection of Virtual Objects

Data Collection

Data from the metaverse, the chat platform, and *Discord* were extracted. Of the 141 submitted exhibits, 59 were either deleted or had their COIL reflection located in an inaccessible area. The remaining 82 exhibits were then scanned for textual data using optical character recognition (OCR), as student responses were in various media formats, such as videos and images.
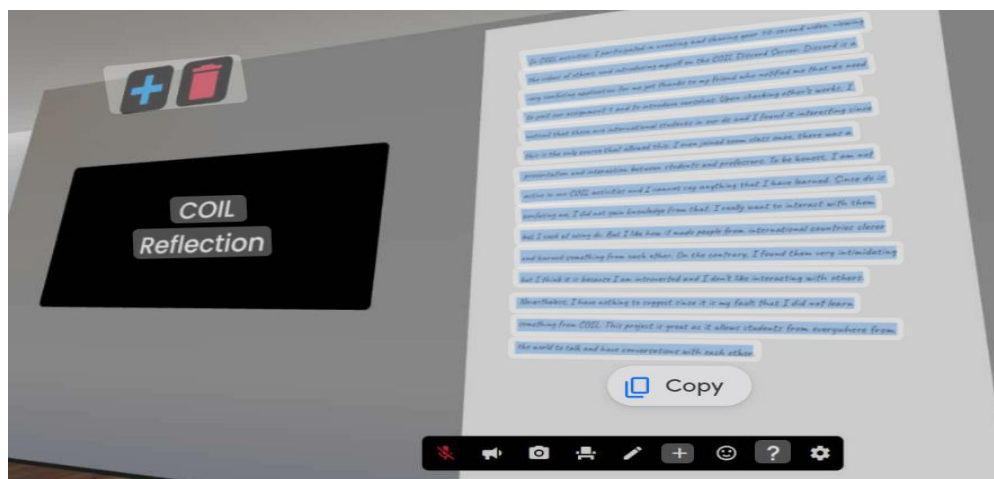

Figure 4. Using OCR to extract text from a student's metaverse exhibit

Data Analysis

All student reflections from the metaverse and anonymized data from the *Discord* community were analyzed separately through reflexive thematic analysis following Braun and Clarke's approach (Byrne, 2022). The analysis aided in identifying and interpreting patterns of meaning within the data, which were categorized into main themes and sub-themes related to the benefits and challenges of COIL activities.

RESULTS AND DISCUSSION

Thematic Analysis Findings

Table 1
Codes and Themes Identified from the Metaverse Exhibits

Main Themes	Sub-themes	Codes
Benefits	Cultural Exchange	- Cultural Awareness (28) - Appreciation of new cultural perspectives (30) - International students were eager to understand Filipino culture (2) - Finding similarity amidst differences (18) - Appreciation of diversity (25) - Sense of connection with international students (30)
	Learning and Growth	- Learning together and from each other (38) - Broadening perspectives (29) - Improved communication and presentation skills (12) - Helped build self-confidence (7) - Improved self-expression (12) - Shared goal of self-improvement (3) - Helped step out of comfort zone (13)
	Positive Learning Experiences	- Engaging and enjoyable activities (37) - Positive interactions (37) - Improved online class experience (17) - Opportunity to share and showcase interests (33)
Challenges and Limitations	Communication Barriers	- Limited time together (13) - Difference in time zone (11) - Difficulty in using *Discord* (6) - Language barrier (5)
	Interpersonal Challenges	- Difficulty in maintaining a personal connection (8) - Limited interactions (18) - Passive group dynamics (17) - Absence of connection did not have an impact on projects (2)
	Lack of Engagement and Collaboration	- Lack of activities that encourage initiative and connection (29) - Low knowledge exchange due to interaction not being heavily enforced (3)

The 82 student reflections from the metaverse yielded a total of 27 codes, capturing prevalent phrases and noteworthy comments. These codes were subsequently organized into six sub-themes, with three sub-themes corresponding to each of the main themes identified: the **Benefits of COIL** and the **Challenges and Limitations**

perceived by students participating in COIL activities. The codes, sub-themes, and main themes determined are presented in Table 1. The number of responses attributed to each code is also indicated.

Significantly fewer COIL-related responses were collected from the *Discord* community server. These codes were subsequently organized into five sub-themes and two main themes. The codes, sub-themes, and main themes determined are presented in Table 2. The number of responses attributed to each code is also indicated.

Table 2
Codes and Themes Identified from the Discord Responses

Main Themes	Sub-themes	Codes
Benefits	Cultural Exchange	- Appreciation of new cultural perspectives (3) - Appreciation of diversity (1) - Sense of connection with international students (2)
	Learning and Growth	- Learning together and from each other (1) - Broadening perspectives (1) - Improved self-expression (2)
	Positive Learning Experiences	- Engaging and enjoyable activities (5) - Positive interactions (4) - Opportunity to share and showcase interests (3)
Challenges and Limitations	Interpersonal Challenges	- Difficulty in maintaining a personal connection (2) - Passive group dynamics (2)
	Lack of Engagement and Collaboration	- Lack of activities that encourage initiative and connection (1)

Empowerment

Regarding the empowerment of Filipino students, one of the major themes was *personal growth,* which was dominated by the subthemes related to *learning from each other* and *broadening perspectives.* However, the subthemes that stood out were *improved self-confidence and self-expression*, which could have been brought about by their American and Japanese peers and teachers' recognition of their creative projects. This can be attributed to their field of study, as they were all in the Multimedia Studies program. Even so, it reaffirmed their world-class talent and said that they could contribute to the growing creative global digital collective. It is interesting to note that some of them just realized their skills were on par with those of their foreign counterparts after joining the COIL project. This adds to the narrative of benefits from North-South initiatives involving COIL as a third space that fosters productivity, dialogue, and reflection while also generating fresh possibilities for addressing historical inequalities and injustices, questioning the hegemony of Western knowledge and teaching methods, and challenging the colonial underpinnings of university practices and curricula (Wimpenny, Finardi, Orsini-Jones, & Jacobs, 2022). Benchmarking is usually conducted to determine whether academic standards are acceptable in other countries. The recognition that they gained from their peers and their own experience affirmed that even though they were engaged in a non-traditional modality of higher education provided by an institution in the Global South, they have been nurtured and trained with the same level of 21st-century skills needed to succeed in the global stage, confirming the equal capability of distance education as argued by Michael Moore's editorial (1997). These factors may have contributed to the increase in their self-confidence.

Another theme related to the empowerment of the Filipino participants was represented by *cultural exchange,* which led to their realization of their global identity and citizenship, as supported by the dominant subthemes related to their *sense of connection with other international students* and their *appreciation of new cultural perspectives.* This was supported by a very enlightening remark from one Asian-American student about the project. They said that it was their first real encounter with learners from the motherland of one of their parents. They even said they somehow filled a void they did not know they had. This led them to form friendships among the Filipino participants actively. Other Filipino students were very happy to have formed social connections with peers from Japan and the US. Some

wanted to learn more about their culture, so they felt that the activities gave them an experience they would not otherwise have without flying to and staying for several weeks in these countries. They were often reminded that they were part of a larger community. While there were still cultural and national barriers, they realized they were not inherently inferior to their Japanese or American counterparts and could contribute equally and collaboratively to the discourse of global issues.

Challenges

Three subthemes— *communication barriers, interpersonal challenges,* and *lack of engagement and collaboration*, emerged from the reflexive thematic analysis. Students noted that the relationships formed were shallow as they did not work together on a common challenge. Most of their interactions were from the video activity they presented, which seemed like an icebreaker. It was suggested that more opportunities for collaboration be created among the students. Many Filipino students wanted more opportunities for synchronous interactions with their international peers. This is not surprising because they had limited synchronous interactions with their classmates and teachers at their university. Some suggested using the metaverse to synchronize interaction with other students in future project iterations.

The Metaverse as a Platform for Reflection

When comparing the themes extracted from the metaverse to those from the *Discord* community, the researchers observed deeper insights embedded in metaverse-based reflections. For example, the *Cultural Exchange* subtheme of purely text-based reflections highlighted three broad ideas. In contrast, reflections in the metaverse included six, including one that involves contrasts "finding similarities amidst differences." This could pave the way for dialectical thinking, which could help individuals develop a more balanced view of global events or opposing values (Ji, Zhang, Usborne, & Guan, 2004). Another example in the *Learning and Growth* subtheme showed that reflective activities in the metaverse may have facilitated out-of-the-box thinking as they had to represent some of their thoughts using three-dimensional objects.

While the comparative result was limited by the significant difference in the number of entries between the two platforms as the learners were more inclined to share their reflections in the metaverse, it can be explained by the argument that creative processes can spark deeper thinking through an empathic experience (Eisner, 2008). This finding encourages researchers who would like to utilize the metaverse for qualitative data collection.

CONCLUSION

This study described an initiative to include Filipino learners from an open university in collaborative online international learning originally intended for Japanese and American students. A digital communication platform was used to facilitate asynchronous communication, while reflections were creatively solicited from students through the metaverse. The results affirmed that including the Filipino students in the activity empowered them with an affirmation of their skills, talents, and contribution to global conversations and critical issues. While friendships were formed and perspectives were more diversified, the activities needed more depth, which led to the proposal of collaborative project-based activities and a more extensive use of the metaverse in future iterations.

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