

# Overview of the Impact of Collaborative Online International Learning on Learners

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**ABSTRACT.** The collaborative online international learning (COIL) model has been used in language education and other disciplines for over a decade and to date, there has been considerable research into the effects of COIL and the factors related to the effects. However, the majority of these studies have generally focused on one or more skills of the student participants, making it difficult for current researchers to see the overall picture of COIL-related research, while a review study of previous research can fill this gap. This review study provides an up-to-date systematic review of research on the positive and negative effects of COIL's teaching model on students and its influencing factors. On the one hand, this study summarizes the effects of COIL on students' language skills, non-verbal skills, and affect. On the other hand, the author also provides a brief account of the factors that influence these effects in COIL and the research gaps in COIL. Students have a better language learning environment in the process of COIL. From the perspective of language skills, COIL can improve students' fundamental language skills, such as listening, speaking, reading, writing, and translation, and the language in real communication. In terms of non-linguistic skills, participants significantly improve their intercultural communication skills and digital literacy through COIL, and improve the 21st century super skills. Students also demonstrate greater emotional gains through COIL, reducing their anxiety about using a second/foreign language to communicate with international peers and increasing their confidence in expressing their views in a language other than their native tongue. Overall, COIL can positively impact students in various aspects and the impacts vary across individual and contextual factors. Research gaps and future research directions are discussed. Also, implications for teachers, students, institutions, and researchers are provided.

## 1 INTRODUCTION

Collaborative online international learning (COIL) in higher education, as an innovative and highly inclusive internationalisation strategy, has attracted increasing scholarly attention worldwide. It's a relatively new form of virtual exchange, which means online cross-cultural interaction and collaborative projects between groups of learners from different cultural backgrounds or geographical locations being undertaken as a component of their educational programme [1]. COIL is a teaching model in which teachers and students from different cultural and linguistic backgrounds work together in an online collaborative teaching and learning project [2]. COIL can expand international partnerships at a significantly reduced material cost. Some universities offer COIL opportunities to help students develop collaborative skills and an international mindset, and to enhance their digital literacy, thus empowering them to use modern information technology for independent learning.[3] [4]. Sometimes, COIL and virtual exchange are used interchangeably; however, they are discriminated in this study by taking virtual exchange as an umbrella term encompassing a wide variety of online intercultural exchange models such as telecollaboration, e-tandem,

COIL, and cross-border exchange. Compared to the traditional international exchange programme, COIL can be more effective in providing cross-cultural communication opportunities through experiential learning and avoiding the difficulties associated with the inconvenience, high cost, and limited opportunities of international travel. Also, COIL projects are mostly purely online and therefore allow students from different countries to communicate with each other and engage with international group projects effectively at a lower cost than physically travelling abroad. As such COIL, more diverse, equal, and inclusive than traditional exchange programs, can bring international exchange opportunities to a greatly larger population of university students. The students who have proper digital tools and internet connections can now enjoy cross-cultural exchanges. The exchanges allow students to gain a deeper understanding of course content from different perspectives than courses without a COIL element.

Most previous research and practice have focused on traditional international exchange programmes, which require international travel. Since the outbreak of the Covid-19 pandemic, offline exchange programmes worldwide have been severely disrupted. In such circumstances, many of the functions of offline exchange

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programmes in higher education were realized by the practice of home internationalisation. Virtual exchange is one talent development method of the home internationalisation approach. In addition, internet-based social media and teaching management platforms, instead of international travel, are employed for communication between teachers, between teachers and students, and between students. Although university teachers and students mostly acknowledge that traditional exchange programmes can improve learning outcomes, virtual exchange model like COIL has also been found conducive to learning in a myriad of dimensions, such as various language skills, cross-cultural communication, teamwork, and digital literacy.

Given these advantages and benefits discussed above, COIL has attracted increasing attention from foreign language educators and researchers; but research about COIL is still limited in scope and depth. Despite extensive research on the virtual exchange models such as telecollaboration and e-tandem, COIL is highly underrepresented in research related to virtual exchange. Also, most studies of COIL focus only on one skill. Research is warranted to summarize the application and influences of COIL in foreign language education. Therefore, this study aims to systematically review COIL-related research and to synthesise the effects of COIL on students' language skills, non-verbal skills, and affective factors. It also provides a brief analysis of the influential factors associated with the different effects on learners in COIL.

## **2 IMPACTS OF COIL**

### **2.1 Impacts of COIL on language skills**

COIL, as a form of virtual exchange, has a positive impact on the acquisition of language skills. Existing research suggests that COIL provides opportunities for second language learners to interact with native speakers in real-life situations, and through peer feedback, second language learners increase their vocabulary knowledge, avoid fossilization, and speak in a way more closely resembling the native speakers of the target language [5]. COIL greatly reduces the distance between people from different geographic locations, allowing students from different countries to communicate and collaborate on the same project or task through social media with internet connections. As such, it creates a more suitable second language learning environment than traditional face-to-face classes alone.

### **2.2 Impacts of COIL on non-language skills**

COIL provides students with opportunities to improve their cross-cultural communication in interacting with their international partners. Students establish a cross-cultural environment with international peers through the Internet that is more conducive to non-language skill learning, and at the same time, both sides communicate and exchange ideas on cultural aspects outside of the classroom. In the process, students can further understand

cross-cultural differences, and increase their experience and ability of cross-cultural communication.

In COIL, two classes from different countries will be divided into international groups, each consisting of students from both sides, and each international group will be required to communicate weekly through pre-agreed social media (e.g. Skype, WhatsApp, WeChat, Zoom, etc.) using text, voice, and video conferencing to discuss group projects, brainstorm, read and analyse literature and other activities. During these exchanges, they gained rich experiences in cross-cultural communication and learned to analyse and solve problems from different cultural perspectives. In this way, they enhance their international perspective, cultural awareness and tolerance, and understanding of different cultures through international group projects, promoting mutual appreciation of civilisations and learning from each other. The extent to which intercultural communication skills improve or are improved is related to the students' participation.

With the advancement of information technology, digital skills have become indispensable in cross-cultural communication and digital literacy is now a necessity in the employment market. Students need not only language skills but also non-language skills, such as mastery of digital tools, to communicate in COIL projects or other virtual exchange environments. To complete an international group project, students need to communicate with their local and international COIL partners, in text, voice, or videoconferencing on different social media. They might also be required to use some teaching management platforms (e.g., Blackboard, Moodle, Edmodo) and some other educational applications (e.g., VoiceThread, Flipgrid, Whiteboard).

In using these tools, students bridge the digital divide between the accessibility of online tools and their effective use. The digital tools were enhanced for students in terms of their learning function and reduced in terms of their entertainment function, as students used more functions of the digital tools that they were familiar with and learned new digital skills from their international peers.

As an international collaborative group learning project, COIL allows students to discuss and solve problems with students from different countries in their groups and improve their overall skills, especially the super skills that the 21st-century job market values. In the 21st century, people must have higher levels of thinking skills known as 21st-century learning skills in order to cope with the new changes that have occurred over time [6]. The 21st-century super skills consist of four main areas - collaboration, communication, critical thinking, and creativity. COIL requires participants from different cultures and speaking different languages to work together in small groups to complete a learning task. Collaboration skills are developed as the group members work together to complete COIL. Completing COIL tasks requires group members to actively engage in ongoing communication with their local and international partners and to constructively discuss the topics covered. In this process, the group members' communication skills and critical thinking are enhanced. Catalyzed by critical thinking, group members are more likely to develop a sense of creativity.

### 2.3 Impacts of COIL on affect

Students emotionally engage in COIL-related tasks that in return contribute to students' emotional state. In recent years, the impact of affective factors on learning has been studied in great depth [7]. Educators and researchers regard the impact of emotions in education as more important than ever before, no less important in learning than the learning environment and the language used to convey information. In the case of COIL, students from different countries initially approach each other with the usual interpersonal communication moves in ice-breaker activities, despite language barriers. Differences in language usages make it difficult for some participants to communicate with their international partners, and these participants show strong language anxiety and social stress in COIL-based cross-cultural communication. As the COIL project progresses, their emotional response to such communication may gradually change.

The achievements which students made in COIL include not only language or non-language skills but also affective development. Their emotional gains were even more evident than their skill gains. Their emotional gains may be related to the novelty of COIL as the first intercultural communication experience for most students, and the gradual realisation that they can use English for authentic communication purposes and that English learning is not just exam-oriented. Many COIL participants mention that they have improved their confidence in using English through COIL and no longer feel worried about whether they are able to communicate clearly or whether their COIL partners can understand them, while they usually experience such anxiety and worry before or at the very beginning of COIL, and therefore find it difficult to communicate with their international partners. However, through COIL, participants find that grammatical errors, in most cases, do not cause misunderstanding among their international peers or frequent communication breakdown. Such realisation can effectively reduce their anxiety in communicating in English and increase their confidence about and motivation for communication in English. Some participants also feel that their interaction with international partners in COIL raises their awareness of the importance of English input and output skills and therefore become more motivated to learn English. They can also better express themselves and collaborate with others than before.

## 3 FACTORS RELATED TO COIL IMPACTS

The modality of communication is an important factor in improving language skills through COIL. Modalities that can be adopted in COIL include, but are not limited to, text-based chats, voice chats, and videoconference. The impact of different modalities on participants' language skills also varies. Participants who used text-based chats in COIL showed more significant improvements in reading and writing, while those who used voice chats or

videoconference showed more significant improvements in their speaking skills.

The factor reflected in the extent to which the use of information technology and the degree of interpersonal communication fit in some ways affects the acquisition of language skills. In the early days, when international online communication tools were still immature, COIL was mostly conducted by text-based chats. Of course, in addition to technology, the digital literacy of the participants also influences the modality of COIL to a certain extent. The participants come from different countries and have different digital literacy and IT conditions. Participants need to coordinate the communication tools used in COIL and decide which modality to use for learning.

In addition to the communication tools, the language background of the COIL partners also needs to be coordinated. Depending on their level of English, some students are suited to working with native speakers, as most of them are quite used to communicating in a second language, which makes communication with native speakers much smoother. Other participants are more comfortable working with ESL/EFL learners. These students had less psychological stress in communicating with ESL/EFL learners than they did with native speakers.

Some time-related factors also affect the effectiveness of COIL, the two most important being the length of the COIL project and the time lag; the longer the duration of the COIL project, the more significant the progress in language skills gained by the participants, and the shorter the duration of the COIL project, the less significant the progress in language skills gained by the participants. If the duration of the COIL project was too short, the participants' progress in language skills was less significant. In addition, COIL participants with a smaller time difference were more likely to make more progress, as they were able to coordinate their time more easily, without having to adjust their work schedule too much, and were less likely to work different hours from each other.

Participants' emotional gains are related to various factors. From the perspective of participants, their attitude toward the COIL project and overall English proficiency have an impact on their affective development through COIL. If the participants themselves are very positive about the project and want to contribute to the group work, they will be more likely to make emotional progress in the project. A similarly positive effect can be achieved by English proficiency, as students with higher proficiency can better engage in intercultural communication and therefore experience lower language anxiety.

In terms of the learning environment, the relationship between students and their local and international peers can also influence their emotional gains. This is because COIL participants are not only confronted with language differences, but also with intercultural exchanges. If students and their international partners respect each other's culture and incorporate the strengths of such intercultural exchange, COIL might bring greater participants' emotional gains.

## 4 THE MISSING PICTURE IN COIL-RELATED RESEARCH

Most studies of the impact of COIL on language skills collect observational data, which cannot support causal inferences, while experimental design, the golden standard of causality, is rarely adopted in this field. Therefore, further studies that can draw causal inferences are warranted to resolve the inconsistency of findings in existing descriptive studies. Also, updated literature reviews are needed to examine the development of COIL-related research and provide directions for future research. Angelova & Zhao [8] showed that American students provided targeted coaching and feedback to Chinese students on grammatical errors in their writing in the five weeks of international online collaboration. The coach and feedback were likely to help Chinese students improve their grammatical accuracy. In Greenfield's study [9], however, it showed that neither vocabulary nor grammar skills were improved through virtual exchange activities, but only the learners' confidence in using the second language was boosted. In future research on COIL practice, researchers may employ (quasi) experimental design to investigate the impact of COIL on language skills.

In addition, current research on COIL is more prevalent in Europe and the US and relatively less so in Asian countries, and this international imbalance can bias the results of studies examining the impact of COIL on its participants on a global scale. In addition to the imbalance in international research, there is relatively little COIL for language programmes compared to other types of COIL. Although some studies have shown that COIL programmes improve participants' input and output skills in a second language, there are fewer COIL projects that specifically target language courses. If there were more COILs for language courses, on the one hand, participants' language skills would be improved more significantly through COIL projects, and on the other hand, research on COILs would be more comprehensive, and more data would be available for research on COILs in language.

Emotions can be expressed through verbal or non-verbal communication [10] and affect learning outcomes. Students with positive emotions can show higher achievement than those with less positive emotions [11]. However, COIL students receive insufficient guidance to regulate their emotional engagement, and therefore some students might refrain from further engagement because of the emotional fluctuation during COIL, especially for the tasks after ice-breaker activities. Although the majority of participants report that they have been positively influenced by their international partners during their participation in COIL, become more confident, and wanted to express themselves more in the project, some participants still feel that they do not benefit emotionally from doing COIL. In addition, participants who are unable to manage interpersonal relationships or international collaboration in COIL are even less confident in and motivated for interaction with international partners. Although this scenario rarely happens, researchers should not neglect, but take this into account in future research.

## 5 CONCLUSIONS

In summary, this review paper provides an up-to-date systematic review of research on the effects of COIL on students' language skills, non-language skills, affect, its influencing factors, and research gaps. COIL, as a relatively new online cross-border teaching and learning model, has been increasingly investigated by researchers worldwide. In general, COIL can positively influence teaching outcomes, and its impact is related to many personal factors (such as second language proficiency and digital literacy) and contextual factors (such as language environment and COIL design). Most effectiveness-related studies have analysed the impact of COIL on students and their development.

Although research on virtual exchange has contributed to the study of COIL, the wider scope of research on virtual exchange means that the research on teaching and learning related to it cannot fully demonstrate the unique impact of COIL as a teaching method on students. In addition, COIL-related studies have also been less likely to use experimental designs, and therefore a causal inference is hard to draw for the COIL impacts on student learning. It is suggested that future researchers in this area could design experimental studies to establish a causal relationship between COIL and important outcome variables such as verbal skills, non-verbal skills, and affective factors.

This review study, showing a systematic review of previous research findings on COIL (especially the aspect on students) and the current state of development of COIL, has some implications for different groups of stakeholders. The implications are expounded across the groups including teachers, students, and institutions having implemented or planning to undertake COIL projects and researchers in the field of language education who would like to investigate COIL further. Teachers are recommended to pay more attention to the emotional dynamics of students in COIL than in the traditional face-to-face classroom. In order to effectively implement a COIL project, institutions and universities could provide more appropriate IT equipment and technical support for teachers and students for a better implementation of a COIL project and a more pleasant learning experience, so that they can learn more effectively and have a better process experience in COIL. Students are expected to gain more language literacy and language skills in COIL and to develop digital literacy and global awareness to make them more adaptable to a modern international learning environment.

With the development and internationalisation of higher education, there is a trend towards the internationalisation of human resources development, which will make students better suited for future work and research. The recent outbreak of the COVID-19 pandemic has reduced the opportunities for study abroad, and COIL, as an online cross-border learning model, can make up for the lack of international education, as it is a more diverse, inclusive, and equal teaching model than traditional exchange programs. As technology develops further, the COIL model will become more diverse and available, and therefore deserves more scholarly attention in the future.

## References

1. R. O'Dowd, from telecollaboration to virtual exchange: State-of-the-art and the role of UNICollaboration in moving forward. *J. of Virt. Exch.* 1 (2018) 1–23. DOI: <https://doi.org/10.14705/rpnet.2018.jve.1>
2. SUNY COIL Centre, Faculty guide for collaborative online international learning course development V1.4. (2015). Available online at: [http://www.ufic.ufl.edu/UAP/Forms/COIL\\_guide.pdf](http://www.ufic.ufl.edu/UAP/Forms/COIL_guide.pdf) (accessed November 16, 2018).
3. T. Lewis, Between the social and the selfish: learner autonomy in online environments. *Innov. Lang. Learn. Teach.* 7 (2013) 198–212. DOI: <https://doi.org/10.1080/17501229.2013.836202>
4. C. Lai, *Autonomous Language Learning with Technology: Beyond the Classroom.* (2017). London: Bloomsbury.
5. Lee, L., & Markey, A., A study of learners' perceptions of online intercultural exchange through Web 2.0 technologies. (2014) *ReCALL*, 26(3), 281–297. <https://doi.org/10.1017/s0958344014000111>
6. M. C. Sahin, Instructional design principles for 21st century learning skills. *Procedia - Social and Behavioral Sciences*, 1(1) (2009) 1464–1468. <https://doi.org/10.1016/j.sbspro.2009.01.258>
7. Bouhlal, M., Aarika, K., Abdelouahid, R. A., Elfilali, S., & Benlahmar, E., Emotions recognition as innovative tool for improving students' performance and learning approaches. (2020) *Procedia Computer Science*, 175, 597–602. <https://doi.org/10.1016/j.procs.2020.07.086>
8. Angelova, M., & Zhao, Y., Using an online collaborative project between American and Chinese students to develop ESL teaching skills, cross-cultural awareness and language skills. (2014) *Computer Assisted Language Learning*, 29(1), 167–185. <https://doi.org/10.1080/09588221.2014.907320>
9. Roseanne Greenfield., COLLABORATIVE E-MAIL EXCHANGE FOR TEACHING SECONDARY ESL: A CASE STUDY IN HONG KONG. (2003) *Language Learning & Technology*, 7(1), 46–70. <http://llt.msu.edu/vol7num1/pdf/greenfield.pdf>
10. Brooks, J. A., Shablack, H., Gendron, M., Satpute, A. B., Parrish, M. H., & Lindquist, K. A., The role of language in the experience and perception of emotion: a neuroimaging meta-analysis. (2016) *Social Cognitive and Affective Neuroscience*, nsw121. <https://doi.org/10.1093/scan/nsw121>
11. Li, M., Application of sentence-level text analysis: The role of emotion in an experimental learning intervention. (2022) *Journal of Experimental Social Psychology*, 99, 104278. <https://doi.org/10.1016/j.jesp.2021.104278>