Collaborative online international learning. From a systematic review of literature about barriers to an implementation plan

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A university program that allow students to collaborate online with culturally-diverse learners is an opportunity that is currently valued. Collaborative online international learning (COIL) programs have been developed for several years, and previous experiences offer insights about what makes their design and implementation difficult. The systematic literature review presented in this paper helps to identify the barriers to efficient COIL implementation, so that universities interested in an internationalization at home policy can prepare carefully.

Internationalization at home.

Up until now, traveling has been the favorite way to discover new cultures and develop intercultural skills. Nowadays, in a digital era, new ways of fostering the development of these competences can be developed. Indeed, in the higher education field, traditional student mobility is recognized as a great way to bring benefits to participants. Nonetheless, there is a clear consensus around the fact that mobile students represent a small proportion of the whole student population (Belee and Jones, 2015). This proportion becomes even smaller when we speak about Asian-European student exchanges. The cultural gap, distance, and cost of living can be the most important barriers discouraging student from traveling and discovering other countries during their studies (and vice versa). The ERASMUS program has not reached its mobility target of a 10% study-abroad rate. Therefore, the issue for the decision makers should be articulated around the question of what to do 'for the remaining 90%'. If they cannot go out into the international world, how can this world be brought to their home campus (Crowther et al., 2000)?

To tackle this challenge, internationalization at home (IaH) can be developed, especially in European and Asian higher education institutions. It seems important to emphasize that IaH should not be seen as a second-best option. Indeed, Beelen and Jones (2015) define this special modality of mobility and exchange as the integration of an international and intercultural dimension into the curriculum for all students in their domestic learning environments. The paradigm behind IaH is that the benefits of developing international and intercultural skills should be open. IaH is intended to offer a democratization of the benefits of internationalization to a broader segment of society (Harrison, 2015). This stance on IaH has been defended by the European Association of International Education since 1999 and is articulated around three key features described by Crowther at al. (2000).

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Diversity as a resource.

This first feature stresses the idea that IaH should draw upon a vision of diversity as a resource. Various scholars have shown that diversity is constructed as an enriching international experience for the socially privileged students that have access to the international university market, but the situation is not the same for home students. Not all home students enter higher education wanting or even valuing international and intercultural experiences (Ippolito, 2007). Therefore, far from being obvious, constructing diversity as a chance to enrich the home student experience and international skills is something that has to be well prepared at all levels (political, pedagogical and didactical).

Internationalized curriculum.

The discussion around what exactly entails an internationalized curriculum is beyond the scope of this paper. However, it is important to sketch the lines of the most consensual definition of this kind of curriculum. An internationalized curriculum is seen as the integration of knowledge about other nations, the use of perspectives and epistemology from other nations and with the aim of developing intercultural skills for all students (Harisson, 2015). In short, the internationalization of the curriculum should be a broad thought process about the whole curriculum, the diversity of the teaching staff and students, and how international skills can be introduced at all levels.

Culturally sensitive pedagogy and strategy.

Cultural sensitivity to cultural diversity represents the third and final key component of an IaH program. It is well known that organizations such as universities are often characterized by initial ethnocentrism (Adler, 1991). Through IaH, more participants can enjoy learning experiences that improve their acceptance of social variety and their ability to tolerate diversity without feeling it is a major threat to their own-shared cultural identity. Therefore, if the university regards cultural variety as having potential for mutual intellectual growth, and if all perspectives are considered openly, internationalization can lead to benefits for both the students and the institutions (Crowther at al., 2000).

Even if these three components of IaH have been presented in a separate way, it is obvious that they are highly intertwined and interconnected. Therefore, we can argue that to be effective, the political aspects of IaH need a strong pedagogical support to allow domestic and international students to work together. Collaborative online international learning (COIL) – defined as a learning environment created by two universities from different countries, in which students have the opportunity to experience online collaborative learning and develop cross-cultural and technological skills with international peers (The SUNY center, 2015) – should be seen as a key instrument that makes IaH tangible. By using the great potential of information and communication technologies, COIL can help in realizing practical cooperation between international students and educational institutions.

However, as with every innovative pedagogical tool, COIL encapsulate a large range of advantages, as well as various issues that should not be neglected if a higher education institution wants a successful COIL implementation. In addition to emphasizing the importance of intercultural skills, international collaborations, and technological competences, the COIL format provides improvement in various dimensions related to the training. For instance, the implementation of an online learning community increases students' perception of the quality of learning and teaching (Gray and Tobin, 2010). Guevara and Legaspi (2018) detailed how COIL programs help to challenge stereotypes of students.

The success of a COIL program as a resource that serves IaH will depend on the quality of its implementation. In other words, COIL is not a simple solution that can be integrated with 'one's eyes closed' in every institution. On the contrary, COIL is a complex academic organization that has to be clearly thought through before starting its implementation. Using a COIL format changes the method of teaching, and requires technological input too.

Research question.

With the various issues of IaH developed above and the promising opportunities of COIL programs in mind, the aim of this systematic review is to identify the barriers to effective COIL implementation. With such information, faculties that want to engage in IaH development have the opportunity to be better prepared.

Literature extraction.

This review followed guidelines detailed in the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement (Moher, Liberati, Tetzlaff, and Altman, 2009). Four scientific databases were sought: *dimension.ai, ovid sp* (ERIC + PsychINFO), *web of science*, and *semantic scholar*.

As the literature about COIL implementation is limited (Macleod, Yand, and Xu, 2016), the literature extraction started with a broad keyword selection. Only "collaborative online international learning" was used. Once duplicates were deleted, the title and abstract were read. All the articles that purport to explicitly discuss barriers to COIL implementation or explicitly discuss an implementation process were searched. Access was impossible for a couple of documents. Finally, the remaining articles were analyzed with the inclusion criteria: language (English, French, and German only), content (explicit discussion of barriers or implementation processes), and intervention (COIL or international classes pairing students in a similar topic thanks to communication technology). Figure 1 presents the study selection process that was undertaken in October 2018.

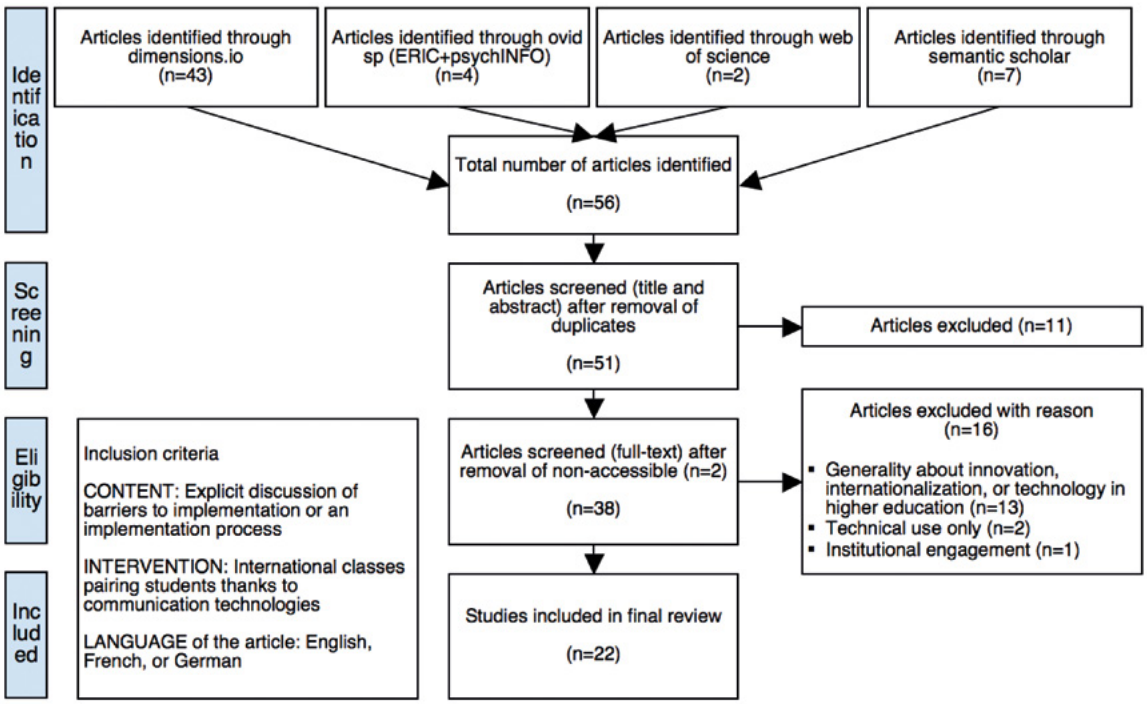

Figure 1: Article extraction process (PRISMA). In the bibliography, articles from this literature extraction are marked with an asterisk (*)

Studies collected.

Twenty-two articles were included in the analysis. Within each study, an international program pairing students by means of communication technology is presented, and either implementation barriers or implementation processes were exposed. These studies cover partnerships between several countries, but the United States is largely represented. The scientific fields in which COIL occurred are diverse, from nurse pre-service training to climate change learning, or entrepreneurial development. Table 1 summarizes those contexts in which the studies were conducted.

#	Authors	Date	Regions involved	Scientific field
1	Fitzgerald, and Lemieux	2010	Mexico and USA	Law studies
2	Solem, and Balachandran	2014	India and USA	Geography
3	Wojenski	2014	USA and several	Intercultural development
4	Knoth	2015	Germany, USA and Canada	Gender studies
5	McKinnon, Smith, and Thomson	2015	Scotland and Japan	Entrepreneurship
6	Loewen	2016	Russia and Canada	Religious studies
7	Macleod, Yang, and Xu	2016	Taiwan and USA	Job application training
8	Marcillo-Gómez, and Desilus	2016	Mexico and USA	International business
9	Pisutova	2016	Slovakia and USA	Marketing and employment
10	Risner, and Kumar	2016	USA and several	Sustainable development
11	Villar-Onrudia, and Rajpal	2016	UK and several	not specified
12	Yan, Zhu, and Macleod	2016	USA and several	not specified
13	Àlvarez	2017	Spain and several	several
14	Bruhn	2017	several	not specified
15	Critelli, Lewis, and Méndez-López	2017	Mexico and USA	Human rights and development
16	Fezzey, et al.	2017	several	several
17	Popov, Brinkman, and van Oudenhoven	2017	several	several
18	Ullom	2017	Canada and Macedonia	Cross-cultural conversations
19	Caniglia, et al.	2018	Germany and USA	Geography
20	Luo, and Yang	2018	China and several	several
21	O'Dowd	2018	France, Germany, and USA	Literature
22	Velazquez, Perkins, Munguia, and Zepeda	2018	Mexico and USA	Climate change

Table 1:

Contexts of COIL programmed in the studies supported

COIL programs represent recent academic developments in different scientific fields, and in numerous regions of the world. COIL seems to be a teaching approach that is currently being developed, even if countless roadblocks are in the way.

Barriers identified.

The presentation of barriers to an efficient COIL implementation is organized into three categories: didactical, technological, and organizational (Kiv, and Knoth, 2018). **The didactical barriers** correspond to what makes the content, the tasks, or the evaluation more challenging in a co-teaching class, where teachers might have different languages and cultures, and where content might be perceived in another way. Some sensitive topics could lead to intercultural conflicts that add to the implementation barriers. Fitzgerald and Lemieux (2010) present the example of terrorism as a sensitive topic. New faculties interested in COIL programs should start with subject matter that is not, per se, a sensitive topic. Beyond this basic safeguard, the roles and responsibilities of teachers in a co-teaching model can be challenging (Yang, Zhu, and MacLeod, 2016): codesigning the teaching plan, co-selecting the resources, co-delivering the content, co-managing student interaction, co-providing face-to-face student support, and co-evaluating students' performances. With such a list of roles and responsibilities that has to be thought through, an introductory discussion is certainly needed between the two partnering teachers to decide who does what, how, and when. It seems obvious that the less clear the roles and responsibilities of the co-teachers are, the less satisfying the COIL program might be. On top of this, when a COIL program is project-oriented (as against discipline-oriented), and therefore interdisciplinary, the vocabulary and models of the two scientific fields mastered by the partnering teachers can add to the need for clarification (Fezzey, Fujieda, Amerman, Goerdt, Kahler, and Nikoi, 2017).

Cultural differences can bring didactic challenges too (Macillo-Gómez, and Desilus, 2016; Pisutova, 2016). Teachers' roles, authority, and power distance are topics that could be discussed by the two teachers, because on the one hand, some cultures consider the teacher as the source of the truth, someone that should not be questioned, a person with great authority. And on the other hand, some cultures consider learning as self-directed, where teachers act as a guide, like partners. The cultural differences can also become didactic issues depending on the teacher activities assigned. For instance, debates and conflicts of opinions might be harder to facilitate when conflict management and students' participation is usually experienced distinctively within each learning culture. Finally, the cultural differences raise the question of students' efforts within the assignments. Between students' diligence as opposed to students' responsibility, or regarding what is expected of a student in need, each culture has its own view of students' engagement and expectations placed on them. Again, these are topics that might have to be discussed when two teachers design a COIL program together.

The final didactic issue identified when a COIL program is implemented is reflexivity. According to Villar-Onrubia and Rajpal (2016), and Popov, Brinkman, and van Oudenhoven (2017), specific moments and tasks engaging participants in an in-depth reflection about cultural differences and similarities is essential to fully enjoy what COIL has to offer. This means that in addition to the specific learning outcomes that orient the program, intercultural goals should be expressed.

Technological barriers identified in the literature go from obvious issues like occasional internet breakdown (Critelli, Lewis, and Méndez-López, 2017) and language (Fitzgerald, and Lemieux, 2010), to more subtle and unexpected ones, like the degree of students' digital literacy (Critelli, Lewis, and Méndez-López, 2017), communication misunderstandings (O'Dowd, 2018), and international access to the learning management system (Fitzgerald, and Lemieux, 2010). When the content and assignments are designed, internet limitations have to be considered. For instance, it might be impossible to organize live online teaching, so lectures recorded in a universal format and of a limited size might

be preferred. It means that teaching must be prepared well in advance, or even before the beginning of the training period. Nowadays, Internet speed is less of a problem when it comes to sharing documents, papers, or datasets. However, the communication tools have to be insightfully chosen. Is your Moodle accessible to the other university? In several COIL implementations, free features of the largely available commercial tools are usually preferred. For example, documents are shared with a google drive and online communication is organized with Skype. One thing is for sure, it seems crucial to test the established communication channels before starting the COIL.

Even with no technical-specific issues, the technology can be a barrier to an efficient COIL implementation. Students' digital skills and literacy might sometimes fall short of enabling full learning engagement. Once a technical roadblock interferes with learning, students can disengage and use technology as a justification for a lack of involvement. In addition to that, online communication sometimes leads to misunderstandings (Risner, and Kumar, 2016; O'Dowd, 2018)). Therefore, students' digital skills should be assessed before the COIL program starts, and should be supported when needed.

Organizational barriers are also diverse and range from simple precautions to real barriers that have to be thought through. Firstly, even if a COIL program looks like it brings amazing opportunities for students, it requires a greater commitment from them. Therefore, finding participants is often challenging (Villar-Onrubia and Rajpal, 2016; Buhn, 2017). When the COIL is not directly part of the curriculum, or when it does not bring additional credits to the students involved, it is understandable that the additional commitment is an obstacle, especially when students are engaged in a curriculum that is already intensive and difficult, or when career or research interests between the partnering students are not aligned (Risner and Kumar, 2016). That raises the question of self-motivation and time management skills that participants need for a fruitful commitment in the COIL program (Fitzgerald, and Lemieux, 2010). Often, COIL programs offer a lot of autonomy and responsibility to the participants, and some of them might not be familiar with this way of learning. So, the coaching offered for technical barriers can be coordinated with personalized coaching for commitment and organization, or simple guidelines could be proposed so that participants are aware of the deadlines and the effort required.

A COIL program is an opportunity for intercultural skills development. But, according to Wojenski (2014), the link between the two international peers is occasionally poor. O'Dowd (2018) talks about a level of authenticity that should be fostered to really enjoy a COIL program. This authenticity is limited by restricted communication, only focused on learning. These testimonies of experience encourage designing moments and tasks within the program that are related to the quality of collaboration. For instance, free class time could be proposed for personal communication between the partnering students, or ice-breaking and team-building tasks could be proposed at the very beginning of the program. Finally, time-zones have to be considered to facilitate communication (Loewenij, 2016). Table 2 summarizes the barriers to efficient COIL implementation identified in the literature.

Table 2: Barriers to efficient COIL implementation

Domains	Barries
Didactic	• Co-teaching is, per se, challenging (teaching plan design, resource selection, content delivery, support, performance evaluation) • Interdisciplinarity adds barriers to the learning design • Cultural differences have to be considered, especially about student's role and engagement • Sensitive topics might create conflicts • Must be reflexive to really take advantage of COIL
Technology	• The learning management system must allow international access • Digital literacy of students should be assessed and supported • Internet speed and occasional breakdowns limit teaching activities • Communication misunderstandings might happen depending on the tools used
Organization	• Cultural differences imply the need to clarify expectations (about tasks, engagement, and evaluation) • Finding participants is difficult, possibly due to COIL not offering additional credit or poor alignments with students' career/research interests • Students' skills (self-motivation, time-management, language) might be an issue • Poor link with international peers is often observed • Level of communication authenticity might have to be supported • Time zone has to be considered

These barriers are now identified. Some implementation processes found in the literature give examples of how to overcome them.

Implementation processes.

The studies included in this systematic literature review present different implementation processes, with 1) varied perspectives, and 2) dichotomous ways to consider the cultural gap. Some of the authors (e.g. Loewen, 2016; Luo, and Yand, 2018) describe their COIL program with a student perspective, detailing what the tasks and opportunities offered were. For instance, Fitzgerald and Lemieux (2010) show examples of the assignments. They present not only a question that has to be answered and developed by the international students, but also detailed instructions elaborated to decrease the possible discrepancies in the didactic contracts[1] due to cultural differences. These detailed instructions associated with the assignments might be an example of what Pistutova (2016) recommends: Detailed expectations. The student point of view of the presentation of COIL programs is also used by Knoth (2015) who shows the variety of tasks that could be offered to maintain students' engagement. This variety is made possible thanks to the digital environment and the collaborative learning. For instance, assignments can be formulating questions based on a video, analyzing the discrepancies in the questionnaire responses, writing a critique about a text on a blog post, creating infographics after a joint reflection, etc. Such a diversity of activities might be an option to counter the self-motivation barrier explained by Fitzgerald and Lemieux (2010).

The other perspective used to present the COIL program implementation is the teacher/faculty point of view (e.g. Àlvarez, 2017; Velazquez, Perkins, Munguia, and Zepeda, 2018). McKinnon, Smith, and Thomson (2015) go into the implementation process deeply by providing details about how a COIL program was designed by the faculty. We barely read the students' assignments in their article. Starting with cultural sensitivity assessment, they then design the skills evaluation, the communication tools, the lectures, and the booklet. This teacher/faculty perspective is also proposed by Caniglia, John, Lang, Wiek, Cohmer, and Laubichler (2018). Their global classroom is designed with four steps (design, implementation, formative evaluation, and final development of the model) in which teachers, technicians, administration staff, and students work closely together on the curriculum development.

1. By didactic contract, we understand all the implicit actions and understandings within an educative event that do not have to be explained to properly engaged students, because of their teaching habits and routines.

The studies analyzed represent a broad range of COIL implementation, from simple coordinated tasks to a whole faculty engagement with internationalization. They also represent various ways to consider the cultural gap, from no time allocated, to a whole program especially designed around this concept. Figure 2 summarizes the scope of, what we call, depth of implementation.

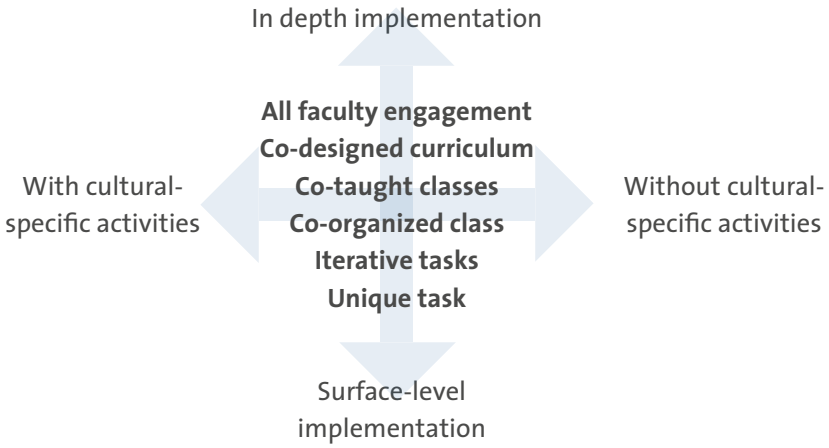

Figure 2: Depth of implementation of COIL programs

Proposed implementation process.

Based on this analysis of barriers and different implementation processes, we propose an implementation model to support future COIL projects. This suggestion will be trialed as part of an IaH development project and will be supported by research work.

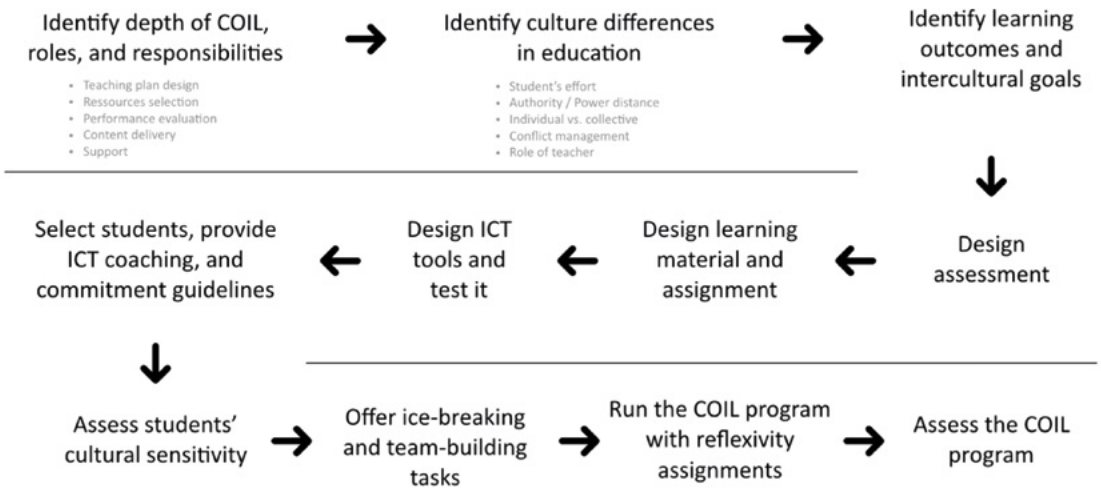

Figure 3: Proposed COIL implementation process

Conclusion.

Acknowledging the different barriers and the depth of implementation discussed above, we can argue that COIL programs should be well structured and prepared in order to allow a real commitment between students. The participants need to have a purpose which becomes the focus of shared work. It engages the students with alternative perspectives, understanding how the cultural heritage of the "others" can improve the task at hand (Pettigrew, and Tropp, 2006). This argues against a vague and blurred COIL implementation model in favor of a more structured and supportive one.

By reflecting on how technology can be used to create virtual mobility, this paper addresses didactical, technological, and organizational considerations in order to increase COIL implementation efficiency. These considerations can drive Asian-European higher education exchanges. If COIL programs do not represent the perfect solution to IaH political difficulties alone, we can argue that they represent a great means of engaging students in a real collaborative landscape. This can contribute to developing a vision of diversity as a resource, and a culturally sensitive pedagogy to tackle the hegemonic ethnocentrism.

Finally, this paper has left serious questions open. For instance, what IaH is remains unresolved. This question would be less central if the universities and faculties were taking international dimensions for granted. Between a marketized vision of universities producing high quality graduates for the global labor market and alternative perspectives arguing that worldwide problems require the intervention of a new generation of 'global citizens' (Harrison, 2015), COIL programs do not answer this question per se. However, after a deeper institutional reflection around the purposes of IaH, a successful internationalization policy can benefit from considering the barriers before COIL program implementation.

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