Engaging Global Health Pedagogy: The Story Behind an Online Problem-Based Learning Course Between Canadian and Haitian Occupational Therapy Students

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Abstract. The cultural challenge of educating Haitian rehabilitation professionals was identified by a Canadian francophone university which collaborated in the implementation and organization of international internships. Ethical cross-border internationalization should ensure reciprocity for partners. With this as a central value and in a context of pedagogical resource scarcity in Haiti, an intercultural educational partnership involved Haitian and Canadian university students situated in their respective countries in a Problem-Based Learning (PBL) course. Teachers and students applied principles of decolonization of health pedagogy principles were applied by teacher and students throughout this cross-border virtual synchronous PBL course. The aim of this study was to determine the feasibility and to identify facilitators and obstacles to conducting a cross-border virtual synchronous PBL course and its perceived benefits in the development of professional competencies. Five Canadian students and five Haitian students, all volunteers, took part in a 3-week cross-border virtual synchro- nous PBL course. Deductive qualitative content analysis of the transcripts from a 120-minute focus group discussion held one week after the course and a logbook kept during the project was conducted. The criteria deemed important to successfully replicate this project relate to: 1) The attributes of the students and teachers involved; 2) pedagogical preparation activities; and 3) the use of multiple communication strategies and connectivity plans. In addition to the acquisition of course content not readily available in Haiti, the student inter-actions inherent in the PBL method supported the acquisition of competencies such as collaboration, communication, and change agent advocacy promoted by the Canadian association of occupational therapy which contribute greatly to strengthening the students' professional identity.

Keywords: cross-cultural pedagogy, problem-based learning, cultural competence, distance learning, international collaboration, global health

Training rehabilitation professionals is an important goal for health systems in fragile states such as Haiti, where pedagogical resources and access to scientific knowledge are very limited (*Rehabilitation 2030*, s. d.). In 2015, the first university program in occupational therapy was established at the Faculté des Sciences de la Réhabilitation de Léogâne (FSRL) of l'Université Épiscopale de Haiti. Establishing the program implied overcoming major challenges, the first being to find qualified teachers. Indeed, when the program opened, there were only four OT expatriates in the country. Therefore, the program depends on professors from the Americas flying in and out to teach the courses on a voluntary basis. This challenge was compounded when travel to Haiti became impossible, due to socioeconomic and political unrest and thereafter by the pandemic. A second challenge was language. Haitian universities must deliver courses in French, whereas most of the teachers from the Americas speak English. Consequently, a translator must be present in all classes, not only increasing the cost, but also slowing down the rate of teaching/learning. More importantly, it causes potential cultural comprehension difficulties, as well as discrepancies in terminology (Waterval et al., 2018). These difficulties include the conception of the disease and handicap, the organization of the health and educational systems, the conception of partnerships, and hierarchical conceptualization of interactions in education.

By the collaboration between the Université de Sherbrooke and the FSRL, we explored an alternative mode of education that would transcend the above-mentioned obstacles to support and sustain the occupational therapy program. Our proposition: A synchronous cross-border virtual PBL course, designed to respect intergroup contact theory and offered in French. According to the principle of reciprocity, the project offered Canadian students the opportunity to be introduced to global health issues and to develop and apply intercultural awareness, while enabling Haitian students access to occupational therapy expertise not available in their country. The research question explored in this paper is: What are the facilitators, obstacles, and perceived benefits to conducting a cross-border virtual synchronous Problem-Based Learning (PBL) course in the context of occupational therapy competency development in higher education?

International and Intercultural Pedagogical Collaboration Partnerships

International and intercultural pedagogical collaboration partnerships allow for the exchange of a curriculum or a course between a home university in the Global North (high-income country) and a host university in the Global South (low-income country). The Global North includes the United States, Canada, England, nations of the European Union, Singapore, Japan, South Korea, Australia, and New Zealand (Scholarship Community Encyclopaedia, 2023). Intercultural virtual pedagogical collaborative partnerships are a form of higher education that is gaining interest (Helm, 2018). According to Waterval et al. (2018), this type of partnership involves a home institution collaborating with a host institution located in another country, to export and implement a curriculum or a course it has developed. This innovative form

of pedagogy offers multiple advantages for both partners. For the host university, usually located in a country with limited resources, it enables the internationalization and modernization of higher education for students within the country, without them having to expatriate (Lane, 2011; Waterval et al., 2014). For the home university, usually located in a developed country, this type of partnership contributes to the "globalization" profile of the institution and creates opportunities to expose teaching and research programs to the clinical realities of other countries (Dokova, 2018). The Covid-19 pandemic has increased interest in this type of pedagogical partnership to such an extent, that intercultural pedagogical experiences have been carried out in areas such as tourism, theatre, languages, business communication and entrepreneurship (Helm, 2018).

The decolonialization (Shahjahan et al., 2022) of cross-border partnerships in education has become an increasingly important value (Barrett et al., 2014; Ogden et al., 2014; Streitwieser, 2014). Decolonization strategies should be included when designing intercultural collaborative cross-border partnerships between universities. Decolonialization strategies such as probing positionality, recognizing dominant knowledge systems, fostering authentic pedagogical alliances and connecting higher education institutions (Shahjahan et al., 2022) can mitigate the fact that courses offered by the home university are developed according to home practices and contexts that cannot be presumed to reflect the reality of students at the host university. A decolonization approach can also reduce the risk of unilateral transfer of knowledge from the home university (Dokova, 2018). Pedagogical cultural sensitivity should involve ensuring that students are cognizant of how identity, representations and stereotypes inform interactions and that they should be encouraged to engage in the critical analysis of these concepts to unveil power dynamics and privilege. Several factors must be considered to ensure the cultural sensitivity and sustainability of intercultural virtual pedagogical collaborative partnerships. First, the course's content must have cultural relevance for both groups of students (Bolton & Nie, 2010). Examples of cultural adaptation include changing the names of places and people and the language and the description of the clinical cases, to render them more congruent with the culture of the host university (Waterval et al., 2018). Second, strategies must be implemented to encourage and support interactions between students from different cultures (Arkoudis et al., 2013; Reid & Garson, 2017). Students tend to group with people who share the same culture and language as them that they do, due to preconceived ideas, differences in working methods, language obstacles (Helm, 2018) or the fear of being culturally incompetent (Harrison & Peacock, 2010). In the context of a PBL pedagogical method based on the co-construction of knowledge, it is essential that student interaction be based on equality, respect, and mutual sharing. To do so, intergroup contact theory, the groundwork of which was laid by Allport in 1955 and validated for the first time by Sherif et al. in 1961, states that under certain favourable conditions, the more contact there is between members of different groups, the more they will get to know each other and the less prejudice there will be between them (Gaertner et al., 1994; Graf et al., 2014; Hewstone & Brown, 1986;

Pettigrew et al., 2011; Taylor et al., 1986). Allport (1955) suggests four essential conditions for positive intergroup contacts: 1) A cooperative approach involving interdependence between the two groups, 2) a common unifying goal, 3) the perception of equal status and 4) the presence of norms of equality valued by those in authority. The value of these conditions has been validated many times over the past 60 years and several syntheses of the many studies on the subject are proposed (Pettigrew, 1998; Pettigrew & Tropp, 2006; Pettigrew et al., 2011), including their application to virtual interactions (Kim & Wojcieszak, 2018; White et al., 2014). Even though some research shows that intergroup contact in informal situations where Allport conditions are not present can produce positive effects, these effects are limited (Ditlmann & Samii, 2016; Laurence et al., 2018; Loader & Hughes, 2017), or can even be adverse when members of both groups adopt or reinforce negative attitudes towards members of the other group after contact (Alexander & Tredoux, 2010; Barlow et al., 2012; Clack et al., 2005).

One of the first strategies to foster interactions is to intentionally plan formal pedagogical activities that involve students from different cultures working together to achieve the goals of a course (Reid & Garson, 2017). Indeed, students must be able to identify, prioritize and agree on the common unifying goals and objectives pursued by engaging in an intercultural dialogue (Spencer-Oatey, 2013). They can put into perspective common and divergent expectations (Arkoudis et al., 2013; Spencer-Oatey, 2013), then seek a compromise that is satisfactory to all. Intercultural collaborative learning where the members of both cultural groups are interdependent in achieving their common goals also relies on effective communication, on the adaptation of the teaching materials to suit both contexts, and on the availability of sufficient support provided to learners (Spencer-Oatey, 2013). Since intercultural pedagogical collaboration requires questioning and challenging the usual ways of doing things, it is necessary to clarify the expected functioning, the level of commitment and the responsibilities of stakeholders (Arkoudis et al., 2013). All actors must therefore demonstrate openness and the ability to adapt to new situations (Spencer-Oatey, 2013). Moreover, creativity, innovation and tolerance for uncertainty are fundamental qualities to achieve this.

Creativity and innovation also concern technological and linguistic considerations. It is essential to proactively anticipate technological and linguistic obstacles that could hinder the delivery of courses between remote sites, through the implementation of pedagogical activities via videoconference (Ma & Lee, 2019). Although the use of synchronous remote courses via videoconference seems to have benefits for collaboration between participants from different geographical locations, the digital divide presents many challenges in low-income countries. For example, unreliable electricity service, sporadic communication interruptions and increased response times are frequently encountered issues (Scovotti & Spiller, 2011). In addition, in a context where the host university is in a country with limited resources, limited access to technological devices and to a stable Internet connexion is an important issue to

consider (Mittelmeier et al., 2019). To facilitate online education via videoconference, some critical dimensions support online participation. It is important to consider the interaction of six dimensions: Course purpose, learner skills, learning materials, learner support, autonomy, and technology (Bashir et al., 2021). Specifically, this may involve considering the variety of functions and the user friendliness of the chosen interface, the quality and power of the Internet connexion, the human resources available to problem solve as well as the generated cost (Mutijarsa et al., 2017).

Linguistic anxiety can also affect willingness to communicate and the quantity and quality of interactions (MacIntyre et al., 1997). Participants can experience social anxiety to varying degrees when meeting unfamiliar people in intergroup situations (Florack & Mazziotta, 2014; Islam & Hewstone, 1993; Emmons & McCullough, 2003; Stephan & Stephan, 1985; Wilder & Shapiro, 1989) and this feeling is amplified in a second language context. As a result, these technological and linguistic challenges can affect group dynamics, exacerbating the already existing differences between the two groups and consequently, between their statuses, rendering even more salient the "privileged" or "superior" nature of the students from the global north, which generally hinders intergroup cooperation which requires, as far as possible, a relationship of equals. They can also reduce the feeling of accomplishment and prolong the duration of the educational activity, impacting the motivation and overall satisfaction of all participants (Scovotti & Spiller, 2011). Indeed, to maximize the impact of the pedagogical activity between the two groups, it is recommended to facilitate the emergence of certain cognitive processes that counteract the social categorization of "us" versus "them". The first strategy is to give participants the opportunity to get to know each other on a personal basis and thus, to personalize their relationship (Brewer & Miller, 1988; Ensari & Miller, 2005). The second strategy consists of having an inclusive social category emerge, where members of both groups can be part of the same "us", to develop a superordinate common identity (Gaertner & Dovidio, 1989; Gaertner et al., 1994). These dimensions highlight the importance of planning preparatory activities which enable collaborative experimentation by all actors of the two remote groups as well and foreseeing alternative solutions to course completion in the case of a connectivity problem.

Problem-Based Learning in Higher Education, The Pedagogical Method

The course objectives engaged future occupational therapy students in the continuous and iterative development of transverse competencies, as promoted by the Canadian national association: 1) Expert in enabling occupation; 2) communicator; 3) collaborator; 4) practice manager; 5) change agent; 6) scholarly practitioner and 7) professional (Association canadienne des ergothérapeutes, 2012). To do so, several pedagogical methods contributed to the development of knowledge and competencies such as Problem-Based Learning (PBL). PBL is an active pedagogical method with several features. namely: Student-initiated learning guided by the presence of a tutor; the study of actual clinical problems; alternating periods of collaborative work in small groups and periods of individual self-learning (Schmidt et al., 2011; Suryanata &

Wuryandani, 2019). The PBL method has shown to be an effective choice for the development of critical clinical reasoning through the acquisition of problem-solving skills, as well as skills to analyse, interpret, synthesize, and communicate a situation (Moallem et al., 2019; Suryanata & Wuryandani, 2019; Yew & Goh, 2016). Frequent PBL activities are structured to immerse students in authentic learning situations. Such situations are known to contribute to professional competency and identity development (Bélisle & Tardif, 2013). Students who are not familiar with active and self-directed teaching methods are less likely to take part in group exchanges if they perceive a risk of making a mistake or losing face with their colleagues.

Unlike traditional lecture methods where the material is mainly delivered by a teacher addressing a class of students, PBL relies on the active involvement of students around an authentic vignette illustrating a specific health problem in a clinical setting to which the new knowledge is applied. The PBL pedagogical method used in this project follows 9 steps: 1) Synthetizing the problem described in one sentence; 2) listing questions aimed to eventually describe the phenomena in the vignette, 3) formulating an explanatory hypothesis based on previous knowledge; 4) organizing and prioritizing the questions to be answered by the readings; 5) listening to the tutor explain learning objectives; 6) studying the designated readings individually to understand the phenomenon described; 7) sharing (under teacher supervision/correction) their understanding of the phenomenon described in the vignette; 8) discussing the group functioning to ensure an optimal learning environment for future vignette discussion; and 9) individually reflecting on personal learning strategies. Throughout the process, students are responsible for facilitating the discussion and taking notes. Each subgroup of 8-10 students encounters (PBL steps 1-5 and 7-8) a tutor who is a practicing occupational therapist. Each tutor is supervised asynchronously by the teacher responsible for the course, which can comprise 6 to 12 subgroups. The tutors must limit their interventions to identifying loopholes in knowledge acquisition and correcting erroneous understanding. They ensure that the learning objectives are met. Also, tutors contribute by complementing the vignette with examples from their work environments.

An important challenge encountered in occupational therapy programs is early development of professional identity (Turner & Knight, 2015) which is even more of an issue in Haiti, where university training in occupational therapy began only in 2015, and few role-models are to be found. In the context of this pedagogical project, considering the absence of occupational therapist role models in Haiti, the proposition of a cross-border intercultural synchronous virtual pedagogical collaboration using PBL appeared advantageous to the development of clinical reasoning and professional identity, as it would permit students to interact with occupational therapy tutors. To our knowledge, no project has assessed the facilitators, obstacles and perceived benefits in higher education for the implementation of a cross-border virtual intercultural synchronous PBL course.

Objectives

The main objective of this study was to assess facilitators, obstacles, and benefits to holding a cross-border virtual synchronous PBL course aimed at developing professional competencies in occupational therapy students from Canada and Haiti, situated in their respective countries.

Methods

The PBL course content chosen for this study, Cerebral Functions, and Cognition in Occupational Therapy, is part of a competency-based occupational therapy curriculum in the second year at the home university. This content was not available to the host university prior to the project. To respond to the research question aimed at identifying facilitators, obstacles and perceived benefits of a cross-border virtual synchronous intercultural videoconference PBL course, a qualitative analysis (Paillé & Mucchielli, 2016) was conducted. The Consolidated Framework for implementation research (Damschroder et al., 2022) was the conceptual framework which guided analysis.

Participants

Six years before this pedagogical innovation, we as colleagues in OT at the Université de Sherbrooke had made contact and established a collaboration with FSRL, the Haitian University. That international collaboration was the seeding ground for proposing a cross-border virtual intercultural synchronous PBL course. For this pilot study, occupational therapy students at a comparable phase in their university education were purposely sampled. The first group of students came from a Canadian francophone university, Université de Sherbrooke, designated as the home university. The second group of students came from a Haitian university, FSRL, designated as the host university. For each group, participants were recruited on a voluntary basis, which is known to increase the likelihood of seeing positive effects on intergroup attitudes (Wagner & Machleit, 1986). The Canadian students received an invitation by email from the course teacher and the Haitian students received an invitation from the dean of FSRL. The email informed students of project objectives and of the procedure to follow if they were interested in participating in the intercultural subgroup (8-10 students needed) of the course. Twelve percent (12%) (n = 5) of the Université de Sherbrooke cohort and 100% (n = 5) of the Haitian cohort volunteered. They were all included in the project.

Preparatory Activities

Prior to beginning, we, as research team members at the Canadian university and the dean of the Haitian program, held discussions to optimize the preparation of both groups of students. We chose several activities and strategies, based on intergroup contact theory to foster collaborative learning, as that is considered essential to reach the expected benefits (e.g., reasoning, problem solving, synthesizing) of the PBL pedagogical method. Six weeks before the start of the course, we randomly paired the

Canadian and Haitian students with each other, forming five dyads. The purpose of this pairing was to encourage academic and cultural exchanges between students, several times per week by WhatsApp or Messenger, during the six weeks before the PBL course, to foster an interpersonal relationship. The goal of these preliminary exchanges was for each member of the dyad to learn enough about the other person (e.g., sports and cultural interests, family, target occupational therapy interests) to introduce their partner to the other members of the group.

In addition to this pairing, we held a 3.5-hour workshop on intercultural communication to foster collaborative learning, six weeks prior to the beginning of the course (D'Aunno et al., 2017). Four goals were set for this workshop: 1) Create a mutual sharing of knowledge regarding the functioning of the health systems of the respective countries; 2) discuss the differing cultural perceptions around health and disease which would be discussed during the course (cognitive impairment and mental health); 3) discuss communication dynamics between healthcare professionals and patients and 4) identify similarities and differences in clinical practice between the two countries. The workshop involved the 10 Canadian and Haitian students and was facilitated by a global health professional, and co-animated by with the course teacher and the intercultural subgroup tutor as co-facilitators. The workshop included several short activities:

- Presenting the paired student (dyad) to the group;

- Listing local expressions that could be used during the cross-border virtual synchronous PBL course with emphasis placed on funny ones such as "*lâche pas la patate*", meaning "hang in there";

- Sharing beliefs and conceptions of health and disease such as for prominent mental health issues;

- Anticipating difficulties that can occur during the cross-border virtual synchronous PBL course;

- Proposing functional rules to optimize intergroup interactions;

- Explaining the role of the course teacher versus the tutor during the course; Determining common goals and effective communication strategies.

Since the students at the home university were already familiar with the PBL method, preliminary appropriation of this PBL pedagogical method by the Haitian students prior to the course was essential. After reading documents about the PBL pedagogical method, Haitian students practiced PBL by enacting the different steps, using a clinical vignette that covered notions prerequisite to the main course. One of the authors, the course teacher from the Canadian university, acted as tutor of this 3-hour PBL training and was assisted by the Haitian-Canadian occupational therapist who was the designated tutor for the intercultural subgroup.

To facilitate the participation of Haitian students with Creole being their first language and French their second language, four linguistic support measures were put in place, prior to the course: 1) The majority (75%) of reference texts were distributed in French, the language of instruction. 2) French/Creole translation web applications and resources were made available for use. 3) During the course, the Canadian students who had access to notes produced by previous cohorts shared these with the Haitian students. This strategy reduced the knowledge inequities regarding theoretical and foundational notions. 4) During the second year of elaboration of the project, we added a Haitian co-tutor who was able to translate between French and Creole to facilitate interactions during the virtual sessions.

To ensure cultural relevance for the host university, prior to the course, an occupational therapist with Haitian and Canadian origins reviewed and culturally adapted the five clinical vignettes. For example, in the realm of activities of daily living such as hygiene tasks, the term "wash basin" replaced "bathtub", which is not common in Haiti. The purpose of adapting the content was to ensure that the case studies were plausible in both the Haitian and the Canadian contexts and to ensure a better representation of the clinical situations potentially experienced within both countries. Specifically, the functional impacts of the cognitive problems were well illustrated in the vignette and the health service programs.

We were aware of the challenges of the digital divide. Therefore, prior to the course, we scheduled a live trial of several alternative back-up technological communications systems by the students, the technicians from both universities, the course teacher, the techno-pedagogue of the home university and the dean of the host university. Four meetings were necessary to experiment with each option and to set up a contingency plan of alternatives to be used in case of connectivity problems. In preferential order these were: 1) Videoconference 2) Adobe Connect; 3) social networks (Messenger/WhatsApp); 4) phone call (via polycom or hands-free); 5) recording of the course to allow asynchronous listening at a later time. In addition, the Canadian university offered free access to Adobe Connect learning platforms (videoconferencing) and to its digital learning platform (Moodle) to allow Haitian students to access all the required learning resources online (e.g., preparatory readings, explanatory videos, frequently asked questions, etc.).

Structure of the Course

The course was 3 weeks long, involving 2 meetings each week lasting 3.5-hours each. This represented the addition of a 30-minute period to our usual 3.0-hour duration for the PBL sessions (when no intercultural group was involved). During these virtual synchronous meetings, the Canadian and Haitian intercultural subgroups applied the PBL pedagogical method to resolve 5 clinical vignettes covering the entire content of the course. To contribute to equality of status and to facilitate learning and collaborative note taking, a virtual blackboard was used for some PBL steps:

- Synthetizing the problem.

- Asking questions to understand the phenomenon in the vignette,

- Making a hypothesis about the phenomenon (PBL phases 1-5).

- Illustrating some complex content (PBL phase 7).

The seating environment was arranged so that the Canadian participants' table appeared to continue through the screen virtually towards the Haitian participants' table, thus creating a virtual table where all students appeared to be seated together. Hence, for each group, the other group was on the screen at the end of the table. Between classes (PBL phase 6), the dyads of students (a Canadian and a Haitian) had the opportunity to communicate with each other to validate their understanding of the different theoretical notions and to help each other with the work to be done to achieve the course objectives. They also shared their concept diagram to ensure their respective understanding and prepare for the subgroup discussion.

Data Collection

We had all agreed at the start of the project to hold a focus group for all the students who participated in the intercultural subgroup. The focus group guide was sent to all the students to allow them to prepare. For students' cultural security considerations, an emphasis was placed on the importance of individual impressions about the experience, either positive or negative. The students understood that contributions would enhance the experience of future groups of students participating in the cross-border virtual synchronous PBL course in the years to come. Students were also encouraged to send individual comments if they wished (due to confidentiality considerations). A research agent trained to conduct focus groups facilitated a 120-minute synchronous virtual focus group including the 10 Haitian and Canadian students. It took place 1 week after the end of the course. We had developed an animation guide based on the Consolidated Framework for Implementation Research and comprising several open questions to ensure that the facilitators, obstacles, and perceived benefits to holding a synchronous virtual course via videoconference emerged. An example of the questions is: "Could you explain what difficulties you experienced with respect to the development of your competencies while participating in this cross-border virtual synchronous PBL course?" We recorded the group discussion and transcribed it for later analysis. During the focus group meeting, one team member was responsible for taking notes on group dynamics and suggested probing questions and clarifications. Questions pertaining to the perception of facilitators, obstacles, and benefits sought to consider divergent perceptions. Additionally, probe questions further explored all points of view. Furthermore, throughout the 3-week course, an observer kept a logbook of facilitators and obstacles, including technological challenges and group dynamics to allow the group to find ways to immediately overcome them.

Analyses

To answer the research question aimed at identifying facilitators, obstacles, and perceived benefits of a cross-border virtual synchronous PBL course, we conducted a deductive qualitative content analysis (Bingham & Witkowsky, 2022; Paillé & Mucchielli, 2016) using data collected and transcribed from the focus group and the logbook. Data were sorted into categories named facilitators, obstacles and perceived benefits and the level concerned (students, staff, logistic). The data were coded into units and then grouped together to identify facilitators and obstacles, as well as perceived benefits. Since prompt questions had been asked to deepen the understanding of different points of view, when new concepts emerged, they were also considered and coded.

The Ethics committee of the Université de Sherbrooke had approved the pedagogical project. Considering the Haitian context, no Haitian Ethics committee was involved. All Canadian and Haitian students signed a consent form, and it was agreed between participants that what was said was confidential and would be anonymized in publications.

Results

Even though the focus-group sought contrasting perceptions of facilitators, obstacles, and benefits, in the end there was a relative consensus amongst participants.

Facilitators and Challenges

The deductive qualitative content analysis identified:

1) Facilitating factors: factors that should be included in such projects to optimize their success.

2) Obstacles: factors that should be anticipated to be eliminated or reduced to optimize the success of such an educational project. and

3) Perceived benefits of the cross-border virtual synchronous PBL course and collaborative partnership. Specifically, factors related to students, to teaching staff and to teaching methods, as well as logistics, were identified. These are summarized in Table 1.

Table 1

Facilitators and Challenges Observed

	Facilitators to be included	Obstacles to be eliminated or reduced

Students	**Collaboration**
	● Group cohesion
	● Prior pairing of students
	● Distinctive qualities of the students involved:
	   o Willingness to help each other
	   o Ability to take care of others
	   o Team spirit
	   o Desire to learn
	   o Openness to the experience
	   o Perseverance
	   o Patience
	   o Humour
	   o Humility
	   o Enthusiasm
	Communication
	• Granting extended speaking time
	• Validation of mutual understanding
	• Use of non-verbal language
		Collaboration
		● Tendency to have parallel discussions between the two distant groups; represents a challenge to ensure equal participation of physically present students and students via a screen.
		● Difficulty with reading English texts for Haitian students when references are available only in English.
		● Students oriented toward performance.
		
		Communication
		● Use of everyday language in both groups

Teaching staff and teaching methods	**Characteristics** ● Availability of teachers outside of class periods ● Teachers' determination ● Teacher collaboration between the two remote sites and co-facilitation **PBL method** • Promoting group cohesion and new learning • Cultural adaptation of pedagogical content	**PBL method** Existing disparities in the level of mastery of the method

Logistics	Technological considerations	Technological considerations
	● Using social media to spark informal exchanges outside of the classroom ● Simultaneous use of multiple communication options ● Complementarity of synchronous and asynchronous course material **Staff** ● Availability of IT technicians in the two remote sites **Process** ● Increase in the duration of meetings	● Poor quality of audio-visual parameters (sound echoes, reverberations, image loss) ● Instability of the Internet connexion ● Instability of electricity services (Haiti) ● Transmission's delay for audio responses **Process** ● Transport from home to university sometimes difficult in Haiti because of sociopolitical context (violence)

Factors Relating to the Students

Aligned with the principle of interdependence, students agreed on the importance of humour and that the goal of learning together would take precedence over individual performance. A rule was established to slow the rate of conversation to facilitate following. Some communication and collaborative practices emerged from the experience and adjustments were made, accordingly. For example, allowing the students from the site where the teacher was not present (Haiti) to initiate the discussion for PBL steps 1-4 and 7, enhanced their participation. Friendly communication between students and group cohesion were essential elements for the success of the intercultural pedagogical collaboration. The prior pairing of Canadian and Haitian students in dyads and the informal discussions outside the course sessions via social networks (e.g., WhatsApp, Messenger) contributed to building group cohesion and a sense of belonging. In addition, the pairing encouraged exchanges about the course content and seemed to validate the new learnings made in PBL.

> "*Being paired one on one, it allowed us to (...) see if everyone had understood correctly. Being one on one made it possible to validate with our correspondent if they had had more difficulties on a goal or if there was something that they had less well understood.*"

Moreover, the PBL method itself seems to have contributed to the establishment of a friendly group dynamic conducive to teamwork. In addition, the alternation of co-facilitation between Canadian and Haitian students during the PBL promoted the mutual inclusion of the two groups during the exchanges and reinforced a standard that the Haitian students had equal status during the pedagogical activity and in the face of teachers' expectations. Unlike traditional methods that do little to promote interactions between students, the PBL left more room for personalized exchanges,

facilitating the creation of interpersonal connexions and supporting the acquisition of new knowledge:

> "*It's important in PBLs to move forward with the subject, but it's also an opportunity to discuss in a friendlier way (...) That's what makes us retain the material even more*".

Although the PBL was favourable to create a climate of collaboration, using it was a challenge for Haitian students who were unfamiliar with this pedagogical method. Indeed, despite the familiarization workshop with the PBL prior to the course, a difference in the level of mastery of PBL was felt for different phases of this pedagogical method. A feeling of not being quite on the same wavelength was evoked by the students of both sites and noted in the logbooks. A Canadian student expressed:

> "*Haiti is not at the same level of mastery of the PBL method*."

However, this limitation was diminished by the desire to help each other and to ensure mutual understanding, given their interdependence in achieving their common goals:

> "*I learned that for the success of this course, we should all focus together and help each other*".

Several qualities were identified as essential to overcome the various challenges encountered. The willingness of the students, the desire to learn and the openness to experience allowed everyone to invest in the process with perseverance:

> "*We volunteered to do it. So, for sure, by choosing that, we were really happy to do it. For me, I find it really enriching to have this experience at the cultural level, just to learn more about your culture or to live a different school experience.*"

The ability to care for others, team spirit, the desire to learn and perseverance were shown to be the most important character traits in the eyes of students to ensure the success of an intercultural pedagogical collaboration partnership. The focus group also highlighted that patience, and the use of humour were key elements in overcoming the various challenges encountered:

> "*… the fact that everyone was patient and took things lightly, it made it possible to succeed and get through it, and it was pleasant.*"

Factors Relating to the Teaching Staff and Teaching Methods

The availability and the determination of the teacher and tutor were identified as facilitating factors. For example, in the presence of technological difficulties, they made themselves available to offer the courses a second time in separate groups. As the content of the course was initially developed by the Canadian university, the process of cultural adaptation of the clinical vignettes by the teaching staff seems to have been essential to concretize the learning in the eyes of Haitian students.

"*[…] the lessons, the objectives, the examples we take, there is no real difference, (...) we can apply the lessons to a Canadian patient or a Haitian patient. By studying the lessons, we can say that it is applicable to Haitians. And the examples we took as well.*"

Factors Relating to Logistics

We established a hierarchical plan for the prioritizing a digital virtual course before the beginning of the course, and then used and adapted it according to problems emerging and the results of the implemented solutions. One of the main challenges raised by the students concerned the fluidity of communication between the two remote groups via videoconference. First, students from both groups had to adjust their rate of speech during participation in the PBLs while making sure to integrate each other into the exchanges. In fact, an effort had to be made to prevent the conversations from taking place in parallel, between the students who were physically together in the two sites. According to this student, addressing both physically present people and people on the screen was a real challenge:

"*You can't just look at those in Quebec or just look at the screen. […]it is quite a challenge to try to talk to each other and to look at both sides at the same time.*"

Technological problems exacerbated communication difficulties. Indeed, poor audio-visual quality often hindered exchanges. For example, sound echoes and reverberations impaired proper understanding, often requiring repetition, sometimes more than once. On some occasions, audio was available while the image was not, exacerbating the previously described difficulties of including students located remotely. The instability of the Internet signal was also a major challenge, particularly for the group located in Haiti, where interruptions in telephone and electricity services are common:

"*Because it is the telephone companies that solve the Internet issues (…) Sometimes it cuts, and we don't really know why it happens.*"

"*Sometimes we lost the network intermittently.* "

"*The Internet connexion that we lose at times and that comes back right after.*"

The use of several communication options (e.g., Adobe Connect, phone calls, social networks) ensured a certain fluidity during meetings, despite the interruptions caused by technological problems. Asynchronous modes of communication were also used in addition to videoconferencing. For example, e-mail exchanges allowed the clarification of certain concepts. Discussions were sometimes recorded so that they could be listened to again, at a later time. Because of the visioconference test meetings prior to the course, the students showed ease and good problem-solving strategies to switch from one mode of communication to another, whether synchronous or asynchronous.

> "*As of the second tutorial, we all moved quickly; we knew what to do when it didn't work. We weren't handicapped by connexion problems because we had a quick alternative option.*"

The contribution of two technicians, one per remote site, also helped to quickly resolve technical issues that could arise during the courses. Communication strategies were put forward to facilitate exchanges. For example, students reported the importance of non-verbal language in videoconferencing contexts:

> "*I realized (…) that non-verbal is really important. If it didn't work, we could just signal with our hand (without cutting anyone off).*"

In addition, the students were able to adapt their verbal communication strategies. For example, they learned to give extended speaking time to the other, to overcome difficulties in understanding or to adjust to delays due to technology. They also tried to choose a more neutral vocabulary, namely by avoiding using everyday language words that were potentially unfamiliar to students from a different culture. In addition, one Canadian student mentioned that allowing more time for each session was helpful to compensate for the challenge of decreased time allocated to PBL, due to ongoing connectivity issues.

> "Adding 30 minutes to each class allowed, if there was a bug or if there were things to clarify, to have some time to do so."

Pedagogical Benefits

Both students and teachers have seen several very interesting pedagogical benefits from this project related to professional competency acquisition. Qualitative analyses have shown that these perceived benefits lie mainly in the development of the skills and of professional identity described in the following sections.

Development of Occupational Therapist Skills

The students who participated in this project were led to develop certain fundamental skills for professionals such as in the practice of occupational therapy, starting with those relating to the roles of collaborator and communicator. For example, language and the way they interacted had to be adapted because of the cultural differences that distinguished the two groups. A marked importance was also raised regarding the choice of words to be used to ensure culturally sensitive communication:

> "Communication, adapting. Yes, it's technology, but it's a culture difference (…). We know that there are words like 'normal', that we should not say."

Besides the observed differences, students also noted that they used a common language specific to the practice of the profession. This observation seems to have surprised many. Despite the distinctions:

- Between the Haitian and Canadian school curriculum (master in Canada/bachelor in Haiti).

- The clinical practice contexts (well established in a variety of settings for physical, mental, and social health/emerging practice, only in physical health).

- The culture (rehabilitation taking place in a context where autonomy is highly valued/rehabilitation where autonomy is less valued than mutual support).

The two groups were able to understand each other well using terminology specific to occupational therapy:

> "*I know that when we heard them speak, it was truly occupational therapist terms that we had learned, then it surprised me to hear that in the sense that we really recognize each other between occupational therapists.*"

The use of a common language, specific to the profession, also helped to strengthen the professional identity of students in both groups and to form a common supraordinate identity around the feeling of sharing a same profession, which will be discussed at greater length in the next section.

In addition, the competence of managing one's practice, referring to the ability to manage one's time, to set priorities and to effectively manage their practice], also seems to have been used. Indeed, the implementation of distance courses forced students to be rigorous in their studies and to manage their time to be able to combine the additional meetings with the other courses scheduled:

> "*Time management, if we want to send our work a little earlier, it means that we do the tutorial on Tuesday and not on Wednesday evening. To reorganize our schedule to do the clinical skills later.*"

The competence of "manager" also implies being able to adapt and solve problems in unforeseen situations. These skills have been greatly used by the students:

> "*It allowed us to develop our ability to adapt. Also, to react when there are unforeseen events, to find solutions, to be in problem-solving mode.*"

Finally, this experience has also helped develop the role of "change agent", which refers to the ability to promote the profession as well as to make changes to improve the access to and offer of occupational therapy services.

Since the students who took part in the educational project form one of the first cohorts of occupational therapists in Haiti, the knowledge acquired as well as the professional skills developed will allow them to be better equipped to intervene with clients and to promote this new profession within their country:

> "*You will be the first models; you will promote occupational therapy. Then, by being well equipped, you will be able to defend the profession, to implement it well.*"

Canadian students were exposed to certain global health issues. They therefore developed competencies that will allow them to practice their profession with more skills in a context of cultural diversity either within their country, with a clientele from

a different ethnic origin, or within emerging practice environments, such as countries where occupational therapy is poorly developed:

> "For s*omeone who is interested in going to work elsewhere in the world, in global health, it can provide a certain base (...)*"

Development of Professional Identity

The strengthening of the occupational therapy professional identity, or even a supraordinate identity that crosses geographical and cultural boundaries, is one of the main benefits of this educational project. Indeed, the collaboration of two remote groups has made it possible to highlight that, despite cultural differences, they share values related to their future profession. The awareness of this these shared values and knowledge has helped to strengthen the professional identity, as indicated by this Canadian student, then a Haitian student:

> *"But me, an observation that I made (...), we essentially have as the same basis. It seems like it's hard to imagine that we're all going to have the same knowledge of occupational therapists, but I really realized that by talking with them (...)"*

> "*It seems that the occupational therapy identity is already very developed for you, that you already know where you are going, what your tasks are going to be. Personally, it helped me a lot because we try to develop this identity, and then we have a lot of steps that are taken to forge it."*

Particularly for Haitian students, who are more used to practicing with physiotherapists, working with occupational therapy students and teachers has helped to develop their knowledge of their distinctive roles and their specific field of practice:

> "*We have a better idea of what the occupational therapist can do. We see more fields of practice in occupational therapy."*

The pedagogical method by PBL, using clinical vignettes, allowed the contextualization of theoretical learning. It also helped to forge the professional identity of Haitian students.

Finally, the students at the home university mention having developed their cultural sensitivity and the students at the host university mention that they appreciated this new active pedagogical method and loved this content of courses, that was not otherwise accessible.

Discussion

This pilot study has shown that it is feasible to carry out a cross-border intercultural virtual synchronous pedagogical collaboration project with the PBL method involving Canadian and Haitian occupational therapy students in their respective countries, while respecting the main principles of the intergroup contact theory. Facilitators, obstacles and perceived benefits inherent to the method were identified. To

successfully replicate such a project, several elements appeared essential. These elements concern factors relating to: (1) The students, (2) The teachers involved, (3) The teaching methods, (4) Communication logistics.

Planning hierarchical connexion plans including hands-free phones in both universities, WhatsApp and Messenger group on computers and on student's cell phones, was essential in case of connectivity problems. Conducting connectivity tests and practicing alternating communication channels with technicians or techno-pedagogues in both universities and having them available during courses in case of need, helped reduce delays during the course. Recording the course in the site where the teacher is not present was perceived as reassuring by students. Always using the same classrooms reduced the risk of technological problems. Through participating in activities, in addition to developing intercultural skills, students mentioned that they acquired professional skills, including those of communicators and collaborators, and developed their professional identity.

This study reveals the importance of certain individual characteristics, both specific to the students and teachers involved, that will facilitate the partnership's success. Selecting students on a voluntary basis increases the likelihood that those involved will be motivated to take part in an innovative pedagogical project that will require reaching out to another culture (Bidee et al., 2012). Presentation of the desired characteristics to potential student-participants, to recruit voluntary ones, is important to optimize group cohesion, equality of status and the orientation toward a common goal. Moreover, prior pairing of students is a good way to foster team spirit, mutual aid, and group cohesion (Sevenhuysen et al., 2015, Slavin, 2011; & Ensari & Miller, 2005). The contribution of an intercultural specialist contributed to the preparation and optimized the probability of the project's success.

Having a sense of humour, patience and flexibility were some of the most important characteristics mentioned by student-participants to take part successfully in an intercultural virtual course. On the one hand, students were called upon to develop their roles as communicators and collaborators, and to interact with cultural sensitivity (Association canadienne des ergothérapeutes, 2012) with people from different cultural backgrounds who share values and beliefs that are different from their own. In terms of communication, they were called upon to show respect and openness during exchanges and to adapt in the face of divergent perceptions. Students from both distant groups had to learn to recognize their biases to eventually broaden their perspectives (Banerjee & Firtell, 2017) and be able to go beyond a defensive position and adopt an ethno-relativist position, necessary for competence in a context of diversity (Bennett, 2004). To value effective intercultural collaboration, students had to learn to take advantage of this diversity and draw on each other's strengths, to enrich their knowledge (Banerjee & Firtell, 2017).

Furthermore, students were called upon to develop change agent skills. This role involves using one's expertise to advocate for positive change to improve on the services offered to the population (Association canadienne des ergothérapeutes,

2012). In the context of an intercultural pedagogical collaboration experience, students learn to act by considering the different levers and obstacles that can influence the achievement of social change and to adopt a practice that is sensitive to issues related to global health (Fozdar & Volet, 2012). Finally, by contrasting the differences and similitudes in occupational therapy in both countries, students identified common elements contributing to the development of their professional identity. This is a major benefit, since it is recognized as a challenge for professionals entering the occupational therapy profession (Ashby et al., 2016).

In addition to the learning related to the course content, students involved in a cross-border intercultural virtual pedagogical collaboration experience also developed skills related to the competent practice of their future profession, such as efficient time management, adaptability, and problem-solving. In a context where the provision of occupational therapy services is complex and where the clientele encountered is increasingly diverse (St Peters & Short, 2018), these experiences will help them conduct a culturally appropriate, sensitive, and relevant assessment and intervention process (Jasmin et al., 2019).

As we discovered, personal determination and availability of teachers is essential to engage in a pedagogical method that will necessarily result in an additional workload (Perret, 2019). This includes preparatory activities prior to the course which are essential to establish the foundations for the success of the intercultural partnerships (Carrefour des ressources interculturelles, 2019). These elements included the cultural adaptation of the pedagogical content, the coordination of distant courses, the collaboration of teachers between remote sites and the allocation of an additional period at every meeting to be able to cover the whole subject, despite the different challenges encountered. Thus, when technological problems significantly encroached on the time allocated to deal with the subject, the availability of teachers to give the course a second time proved to be an essential facilitator to ensure student success.

Teaching Method

This study showed the added value of adopting active teaching methods, such as the PBL, in the context of intercultural collaboration. The project led us to recommend having an experienced Haitian student to accompany the other Haitian students. This experienced Haitian student who had taken the course the previous year helped, not only with technology but also to stimulate interactions for the PBL phases 1-4 and 7 in the Haitian university and to guide the lectures and the study at phase 6. Having a Haitian student as champion to accompany the Haitian group of students could be a good facilitator in the future. However, it is important to consider that students at the home university are likely to be unfamiliar with this adaptation of the PBL pedagogical method. To overcome this limitation, strategies can be put forward, including providing preliminary training and experimentation with the PBL method to students at the host university and ensuring these students benefit from the same formal and informal learning resources as those at the home university (Scovotti & Spiller, 2011).

At least one vignette should be completed as a practice for the students not used to the PBL pedagogical method, before joining the students who are used to this method.

It is also important to ensure that all students have access to various teaching and linguistics resources and materials, in a timely manner (e.g., Haitian student access to the various Internet platforms of the home university to make the teaching materials accessible). Considering that course preparatory lectures are mainly in English even in a Francophone Canadian university, the sharing of notes produced by Canadian students from previous cohorts reduced the linguistics challenges. Finally, access to scientific literature is a considerable barrier for Haitians. This issue was reduced during a subsequent reproduction of the above project by a concurrent project, financed by l'Agence Universitaire de la Francophonie, which gave Haitian students temporary individual access to the Canadian university library resources.

Communication via Videoconference

Many of the challenges faced by the students involved in this pilot project were communication issues, partly due to technological problems related to the use of videoconferencing and partly related to linguistic competence. To overcome these limitations, several strategies can be put forward, such as planning and experimenting beforehand with various communication alternatives to be adopted in case of suboptimal operation of videoconferencing (Parr, 2019). The possibility of alternating between at least two videoconferencing systems was proven useful when problems were encountered with either system. Also, it is important to ensure that resource persons are available to offer technological support in case of connexion problems and to facilitate the transition from one communication alternative to another (Riverin, 2019). Moreover, the use of social networks (e.g., WhatsApp, Messenger) as an alternative to communication during classes also proved useful outside of meetings to promote informal exchanges between students. Finally, the use of asynchronous methods in complementarity with synchronous methods promotes learning by allowing a replay following the courses (Verenikina, et al., 2017). The project led to a successful grant proposal presented to l'Agence Universitaire de la Francophonie which allowed the purchase of technological equipment (e.g., large monitor, laptops, 360 microphone, cameras, speakers) and stable high-speed Internet access which has improved the quality of communications subsequent to this pilot project and has permitted other intercultural projects.

Conclusion

This pedagogical innovative project demonstrated the feasibility of carrying out a remote PBL course synchronously, between two countries. The experience was very rewarding and stimulating, while allowing the sharing of knowledge. It allowed access to pedagogical expertise in a country with limited resources, particularly pedagogical expertise in occupational therapy. This pedagogical innovation is an interesting avenue to create international collaboration experiences in global health. The study

shed light on the essential conditions for the success of an intercultural pedagogical collaboration project in the context of PBL:

- Planning the connexion strategy.

- Conducting connectivity tests.

- Using the same classroom.

- Practicing alternating between different communication channels.

- Having a techno-pedagogue available in both universities.

- Recording the course.

These conditions reduced delays during the courses. Considering the desire of university health science programs to enrich intercultural collaboration skills and develop cultural competency and professional efficacy in a context of diversity, this pilot project and its evaluation have provided the knowledge to better understand the issues in the context of international and intercultural partnership initiatives in higher education. This project has continued, as three more experiences of this cross-border intercultural virtual synchronous course have now been completed. It led to a grant application that made it possible to carry out remote intercultural internships for the prevention of Covid-19 in Haiti and another to create a virtual community of practice for rehabilitation in Haiti. These grants allowed the purchase of equipment that is also used for the cross-border virtual synchronous PBL course. Therefore, the connectivity challenges mentioned in this paper have been reduced. Furthermore, the cross-border virtual synchronous PBL course is currently carried out with a Haitian co-tutor who facilitates intercultural interactions. A techno-pedagogue has been added to the Haitian team. To enhance digital competency, continuing education webinars have been developed by the Haitian techno-pedagogue with the support of a Canadian techno-pedagogue. Students from previous cohorts facilitate the recruitment of Canadian students, so much so that in 2021, the course was conducted with two intercultural subgroups including two Canadian tutors and two Haitian co-tutors, who were former students of the course and who are considering an academic career.

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Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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