Blended Synchronous Delivery Mode in Graduate Programs: A Literature Review and its Implementation in the Master Teacher Program

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The aim of this study is to present a narrative literature review of advantages, challenges, and conditions for the success of blended synchronous course delivery mode. For this purpose, we searched the database EditLib and analyzed 16 existing papers from 2001 to 2016. The conditions for success were operationalized in the Master Teacher Program (MTP) and its challenges were addressed in building a Blended Session Protocol. This protocol also combines lived experience. It is now used in the MTP to ensure a standardized and consistent implementation of this course delivery mode into our courses. Reviewing the literature on this delivery mode and presenting an example of its use in the MTP are important issues. From a theoretical point of view, the present study results help build a theoretical basis for future research on this course delivery mode and would enrich existing literature. From a practical point of view, this study provides administrators and higher education faculty members with guidance on how to implement such course delivery mode.

Information and communication technology (ICT) has had a significant impact on teaching and learning in higher education. New opportunities in course delivery formats have emerged, with blended learning modes being one of the most popular (Hill, 2012; Irvine, 2009). A universal definition of blended learning does not exist. Numerous descriptions of a blended learning mode appear in the literature with various ways of considering the degree to which students must attend class in person or online, whether learning tasks will be done in-class or online synchronously or asynchronously, and the degree of autonomy offered to students in choosing how or which format they want to use to learn.

A blended mode essentially combines the benefits of face-to-face interactions, with online flexibility and ubiquity (Lakhal & Khechine, 2016; McGee & Reis, 2012). In this mode, faculty and students work together in mixed delivery formats to accomplish learning outcomes that are pedagogically supported through teaching, learning, and assessment activities, and to offer a meaningful course environment to the students (Lakhal & Khechine, 2016; McGee & Reis, 2012). For Bates (2015), a blended learning mode consists of any mix of technology with face-to-face instruction. Allen and Seaman (2013) are more specific: for them, a blended mode features learning environments in which 30% to 79% of teaching and learning activities are carried out through ICT on the Web. All agree that "blended education goes beyond just combining traditional and online teaching and learning (Benson et al., 2011). It involves a total redesign of traditional courses to include the use of technology for online communication, activities, and delivery" (Kyei-Blankson, Godwyll, & Nur-Awaleh, 2014, p. 244).

Traditionally, in blended course delivery modes, the online component is asynchronous with course content hosted on learning management systems (Francescucci & Foster, 2014). Nowadays, blended modes can take on other forms. Some of them are defined as bridging both asynchronous and synchronous online learning (Power, 2008). Others combine face-to-face students with synchronous online students. Some researchers view this new approach of blending as the "bridge to the future" (Kyei-Blankson & Godwyll, 2010, p. 533). There is an extensive literature that uses other terms to describe this instructional approach. The most common term is blended synchronous mode. A blended synchronous course delivery mode is defined as mixing both asynchronous and synchronous online learning, to which face-to-face learning opportunities are added (Bower, Dalgarno, Kennedy, Lee, & Kenney, 2015). It is about "Learning and teaching where remote students participate in face-to-face classes by means of rich-media synchronous technologies such as video conferencing, web conferencing, or virtual worlds" (Bower et al., 2015, p. 1).

Other terms are also used for more sophisticated designs, for example, synchromodal mode. In these designs, some authors introduce the concept of physical classes as opposed to distance classes and cyber classes. The synchromodal mode refers to classes in which online students and face-to-face students interact with each other during shared synchronous class sessions (Bell, Sawaya, & Cain, 2014). It pertains to a learning environment where "face-to-face and online students are brought together in the same course at the same time. As such, some students experience the course unmediated… and some students experience the course in a mediated format" (Bell, Cain, & Sawaya, 2013, p. 1630). Using this course delivery mode, Bell et al. (2014) presented five delivery patterns they implemented in an Educational Psychology and Educational Technology PhD program, in which they had two types of students: face-to-face students who were expected to attend classes in person, and online students who had full-time job commitments which prevented them from participating in the course in person. The delivery patterns included lecture, linked classrooms, shared portal, personal portals, and small groups. Using the same perspective, Hastie, Hung, Chen and Kinshuk (2010) defined the blended synchronous delivery mode by combining five components: physical classroom, cyber classroom, faculties, students, and several classrooms or participants. In these situations, faculties and students participate in physical classrooms, cyber classrooms, or both.

The above definitions are similar in some ways. They typically provide a mix of face-to-face and online synchronous modes which are often chosen by the faculty to achieve a pedagogical, social, or financial end. However, the variety of blended synchronous course delivery modes can go a step further by allowing students' choice (Tsuji, Pierre, Van Roon, & Vendetti, 2012). This is what is known as the HyFlex mode or the multi-access mode. The HyFlex mode combines hybrid learning in a flexible way so that students can either attend face-to-face class sessions, participate online (synchronously or asynchronously), or do both according to their learning needs and availability (Abdelmalak, 2014; Kyei-Blankson & Godwyll, 2010; Lakhal, Khechine & Pascot, 2014; Miller, Risser, & Griffiths, 2013). Multi-access modes provide a choice learning mode where students choose how they want to learn. They can choose to participate with a small group via video conferencing, with a face-to-face group on campus, individually by means of desktop web-conferencing, or online asynchronously (Irvine, 2009).

Transferring from a face-to-face to a blended learning synchronous delivery mode presents colleges and universities with many advantages and serious challenges. This decision should be made based on an overview of research results. In order to help such institutions in doing this, the current study aims to present a narrative literature review on blended synchronous course delivery mode and it attempts to illustrate how the findings influenced the design, development, and delivery of the Master Teacher Program (MTP) at the Université de Sherbrooke. More particularly, it deals with the advantages of this course delivery mode, its challenges, and its conditions for success. Then, these challenges were addressed and conditions for success were established in the MTP. Reviewing the literature on this delivery mode and presenting an example of the MTP are

important issues. From a theoretical point of view, the present study results could help build a theoretical basis for future research on this course delivery mode and would enrich existing literature. From a practical point of view, this study provides administrators and higher education faculty members with guidance on how to implement such courses.

Methods

For the purpose of this literature review, we used one of the most common databases in instructional technology: EditLib. To review studies on blended synchronous course delivery mode, we analyzed existing papers from 2001 to 2016 that reported conceptual and empirical research findings in peer-reviewed journals and conference papers. We selected this period because of the rapid evolution of the context of blended courses in higher education. We applied several keywords in abstract in different combinations: blended learning, blended course, blended synchronous learning, blended synchronous course, HyFlex course, higher education, postsecondary education. We selected 16 papers from the ones initially identified, dealing with advantages, challenges, and conditions for success.

Results and Discussion

Benefits of a Blended Synchronous Course Delivery Mode

According to the authors reviewed, blended synchronous course delivery modes have many benefits. These benefits were classified under four sub-themes that emerged and are summarized in the following paragraphs. These sub-themes are flexibility and access, quality of learning experience, enhanced learning outcomes, and institutional benefits (Table 1).

Table 1

Benefits of blended synchronous course delivery mode

Flexibility and access	Quality of learning experience	Enhance learning outcomes	Institutional benefits
It provides students with greater educational access as it responds to students' scheduling needs by offering flexibility in course attendance.	It allows faculty to differentiate instruction to meet different student learning preferences, approaches, and strategies.	It may increase the quality of learning for both online students and face-to-face students.	It may represent a solution for higher education institutions with limited classroom space.
It gives students equal opportunities to interact in real time with other students and with faculty.	It enriches the teaching and learning environment.	It has been found to come with better course and program completion rates.	It is suitable for less structured courses.
It reduces feelings of isolation of online students.	It enables students to use the technologies they use in their daily lives for learning purposes.	It allows faculty to support students in the same way, regardless of the mode (face-to-face students or online students), in achieving the intended learning outcomes.	

Flexibility and access

Blended synchronous course delivery mode provides students with greater educational access as it responds to students' scheduling needs by offering flexibility in course attendance (Abdelmalak, 2014; Bower et al., 2015; Bower, Kenney, Dalgarno, Lee, & Kennedy, 2014; Cunningham, 2014; Francescucci, & Foster, 2014; Miller *et al.*, 2013). This is especially convenient for those who live far away from university campuses (Bower et al., 2014; Bower et al., 2015; Educause, 2010), or have a work schedule and family responsibilities that make it difficult for them to attend weekly face-to-face sessions (Abdelmalak, 2014; Beatty, 2007; Bower et al., 2014; Kyei-Blankson & Godwyll, 2010). Additionally, it gives students equal opportunities to interact in real time with other students and with faculty, regardless of whether the student is enrolled in a face-to-face or online synchronous course session (Bower et al., 2015; Bower et al., 2014; Francescucci, & Foster, 2014; Miller et al., 2013). This allows for immediate feedback and the ability to join online class discussions (Francescucci, & Foster, 2014). Those who attend online sessions can join face-to-face students in real time to experience a faculty's lesson, ask and answer questions, and add comments to the class interactions. Moreover, online students and face-to-face students may also get together in small group discussions (Bell et al., 2014; Cunningham, 2014) and complete collaborative learning activities together (Bower et al., 2014). Finally, it reduces feelings of isolation of online students and allows them to get to know each other and the face-to-face students much better than if they were attending the course asynchronously (Cunningham, 2014). Moreover, students enrolled in these courses have been reported to experience high levels of social presence, due to real-time communications, which are considered spontaneous and dynamic (Bower et al., 2015; Cunningham, 2014).

Quality of learning experience

Blended synchronous course delivery mode allows faculty to differentiate instruction to meet different student learning preferences, approaches, and strategies (Abdelmalak, 2014; Kyei-Blankson et al., 2014). In addition, the nature of interactions can vary according to student preferences and needs (Miller et al., 2013). Put in this context, Bower et al. (2015) reported that some online students like the fact that they may be able to provide their comments and contribute to class discussion in a discreet way. Accordingly, quiet students can also be heard (Tsuji et al., 2012). Furthermore, it enriches the teaching and learning environment, as artifacts from face-to-face learning activities (such as audio/video recordings) can be used as learning objects by online students and artifacts from online learning activities (such as forums) can be used as learning objects by face-to-face students (Abdelmalak, 2014; Beatty, 2007). A blended synchronous course delivery mode can thus offer faculty and students the best educational experience compared to the traditional face-to-face or online delivery modes (Kyei-Blankson et al., 2014). In fact, "learning seems to be much richer than in either face-to-face teaching or the online learning mode" (Szeto, 2014; p. 70). In addition, it enables students to use the technologies they use in their daily lives for learning purposes (Thompson, 2013), since these technologies are widely used by blended synchronous courses to maintain interactions between students and to foster a social presence (Garrison & Kanuka, 2004; Miller et al., 2013). Indeed, according to Francescucci and Foster (2014), this course delivery mode is suitable for the "digital generation of students who are accustomed to surfing the Internet, texting friends and sharing their lives on social media websites" (p. 36).

Enhance learning outcomes

Blended synchronous course delivery mode may increase the quality of learning for both online students and face-to-face students (Irvine, Code, & Richards, 2013). For instance, it has been reported that online students "will get more out of a course if there is a real-time contact between students" (Cunningham, 2014, p. 34). This course delivery mode promotes student engagement in their learning (Cunningham, 2014) and produces similar if not

more effective outcomes compared to traditional face-to-face courses (Kyei-Blankson & Godwyll, 2010; Kyei-Blankson et al., 2014). Additionally, it has been associated with better course and program completion rates for students who interact synchronously with other students and with faculty as compared to those who rely solely on asynchronous communication (Bower et al., 2014). Finally, it allows faculty to support students in the same way, regardless of the mode (face-to-face students or online students), in achieving the intended learning outcomes (Bower et al., 2014). Faculty can "provide equivalent learning activities in all participation modes" (Beatty, 2010, p. 17). This means that faculty can provide online and face-to-face learners with equivalent teaching and learning activities. This is the principle of equivalency, according to Beatty (2010).

Institutional benefits

Blended synchronous course delivery mode may represent a solution for higher education institutions with limited classroom space (Educause, 2010; Miller et al., 2013). It also has been reported to increase higher education student enrollment and to reduce costs of instruction. Francescucci and Foster (2014) reported that higher education institutions view "blended learning as a way to increase the efficient and effective use of existing human and capital infrastructure... and avoid duplication and unnecessary costs" (p. 36). Additionally, it is suitable for less structured courses, such as those dealing with research in graduate degree studies (Bower et al., 2015). In these cases, it creates an enhanced sense of community between online and face-to-face students (Bower et al., 2014).

Challenges of a Blended Synchronous Course Delivery Mode

The promises of a blended synchronous course delivery mode can only be realized if those in charge of its implementation can overcome important challenges. These challenges were classified under three sub-themes that emerged and are summarized in the following paragraphs. These sub-themes are course design, relationships between online students and face-to-face students, and technologies (Table 2.)

Table 2

Challenges of blended synchronous delivery mode

Course design	Relationships between Online Students and Face-to-Face students	Technologies
Lack of institutional recognition for the amount of effort to be put into the design of a blended synchronous course.	Management of online students and face-to-face students at the same time.	Students' level of technological skills.
A blended learning course design also demands much more physical and social preparation than courses in a single mode.	Feelings of isolation of online students.	High cost of connectivity and technology issues.
	Engaging with other students in blended synchronous courses.	
	Forming relationships with fellow classmates.	

Course design

Lack of institutional recognition for the effort required to design a blended synchronous course may leave faculty feeling unsupported in their efforts to innovate (Bower et al., 2015). While many faculty members have extensive experiences in delivering high-quality instruction in face-to-face learning contexts, their experience in applying their expertise in blended learning environments may be more limited. Extending the faculty's expertise to include redesigning courses using a blended learning approach demands institutional commitment, time, and resources (Moskal, Dziuben, & Hartman, 2013). There is a misconception that this redesigning is simply a matter of changing the mode of delivery to incorporate technology into instruction. In actuality, expertise is required to (re)design and tailor students' learning and assessment experiences both inside and outside of the classroom. This adaptation requires faculty to possess expertise in three areas: 1) course design, 2) theoretical knowledge and understanding of effective blended learning design, and (3) practical knowledge required to re-design a course for blended learning delivery. Acquiring expertise across all these areas for quality blended learning requires a major paradigm shift in the way that faculty approach course design.

A blended learning course design also demands much more physical and social preparation than courses in a single mode (i.e., face-to-face or online) such as setting up the rooms (both physical and virtual classes) in order to create a meaningful learning environment (Bower et al., 2014). In fact, faculty may spend a lot of time anticipating interactions and collaboration between the two groups of students (i.e., face-to-face and online students). These interactions and collaboration do not occur spontaneously and must be well planned (Bower et al., 2015). Otherwise, learning via videoconferencing would not be the same as in face-to-face classrooms due to inappropriate instructional planning (Szeto, 2014).

Relationships between online students and face-to-face students

Management of online students and face-to-face students at the same time may be difficult for faculty (Bower et al., 2015; Bower et al., 2014; Francescucci & Foster, 2014; Hastie et al., 2010). Furthermore, the instructor's pedagogical approach may be compromised. Faculty may slow down their teaching pace or over repeat, which may impact face-to-face student learning (Bower et al., 2015; Bower et al., 2014; Szeto, 2014). The ability of the faculty to gauge students' understanding of the lesson content is another major challenge of the blended synchronous course delivery mode. In face-to-face classes, faculty always have access to nonverbal attitudes of the students to be able to determine if they understand the topics being taught. In the blended synchronous delivery mode, online students' attitudes are not always accessible to faculty, especially when the camera is not used. It is then necessary to find other alternatives (Bower et al., 2014; Francescucci & Foster, 2014).

Feelings of isolation of online students may be another important issue. Some students have to attend course sessions online because of their work and their family responsibilities. These students may feel isolated, fail to engage with the course material and drop out of the course because they have little time for their studies (Cunningham, 2014). As well, in some cases, the visual anonymity makes it easier for online students to disengage in class discussions (Francescucci & Foster, 2014). As well, engaging with other students in blended synchronous courses may be difficult for students (Francescucci & Foster, 2014). Online students reported that they found it difficult to concentrate during a blended synchronous course (Francescucci & Foster, 2014). Students identified some issues such as an inability to hear the questions asked by face-to-face students and difficulty in viewing the details of the material shared through the interactive whiteboard (Bower et al., 2014). Some online students might feel less attention is given them and not welcomed in the course (Hastie et al., 2010), or that their comments are not taken into account by face-to-face students. In fact, it is difficult to give

online students free access to speaking rights. They often have to indicate when they want to speak in text as opposed to raising their hands, and sometimes they are limited to only written participation. Communication seems to be smoother between face-to-face students as compared to that between face-to-face students with online students, or between online students (Bower et al., 2014). At the same time, some face-to-face students feel that faculty spend too much time and effort satisfying technical needs of online students (Szeto, 2014). Both students (online and face-to-face) reported sound problems and not having access to some social cues, for instance, body language and nonverbal attitudes of online students (Cunningham, 2014). Finally, forming relationships with fellow classmates might be difficult for students because they do not meet physically every week (Francescucci & Foster, 2014), and therefore fail to build up a social presence that would be helpful for learning (Cunningham, 2014). Therefore, social and emotional connectedness needs to be encouraged and fostered by faculty in such a learning environment (Bower et al., 2015).

Technologies

Students' level of technological skills can be a challenge in these courses for online synchronous students and face-to-face students. Online students and face-to-face students have to know how the platform works to be able to interact and work together in real time. If some online students lack technological skills, faculty may focus on these students and spend his/her time troubleshooting their technical problems. Technology may also be an issue for face-to-face students. They may feel uncomfortable because they would have to position themselves in front of a camera or to speak into a microphone (Bower et al., 2015; Bower et al., 2014; Cunningham, 2014). In addition, the high cost of connectivity and technology issues may be a barrier for online students in this course delivery mode (Abdelmalak, 2014; Cunningham, 2014; Francescucci & Foster, 2014; Kyei-Blankson et al., 2014). In some cases, the functions within the platform used are not intuitive or user-friendly, which may bother both online and face-to-face students (Francescucci & Foster, 2014). Additionally, some face-to-face students reported that interacting with online students was indirect. Cooperative tasks were difficult to realize in the virtual environment and additional efforts were required to foster group interaction in the instructional process (Szeto, 2014).

Conditions of Success for a Blended Synchronous Course Delivery Mode

For the present study, we also searched for conditions of success and articulation of best and effective practices reported by the authors reviewed. Fourteen recommendations were identified. First, it is helpful to integrate the course delivery mode gradually, especially in higher education institutions where face-to-face instruction dominated for several years (Beatty, 2007, 2010). Also, to seek support from the higher education institution regarding the implementation of this course delivery mode (Bower et al., 2015; Bower et al., 2014; Hastie et al., 2010). It is key to make sound decisions about the technologies and activities to be selected in the blended synchronous course. These decisions are made according to faculty's teaching preferences, to the technologies available in the higher education institution, and considering students' characteristics (e.g., age, learning preferences, and Internet access) (Beatty, 2007; Bell et al., 2014). It may be necessary to limit student numbers for faculty to effectively manage and support online students and face-to-face students (Bower et al., 2015; Bower et al., 2014). Further, to employ teaching assistants who can manage technology related problems, respond to online students' chat comments, and manage other issues (Bell et al., 2013; Bell et al., 2014; Bower et al., 2015; Bower et al., 2014). Also, institutions must use the right equipment to optimize online students' experiences and to ensure students' access to learning activities and course material any time (Beatty, 2007,

2010; Bell et al., 2014; Francescucci & Foster, 2014; Hastie et al., 2010).

It is beneficial to test and practice the use of various technological tools, including communication systems, involved in the blended synchronous course before the beginning of the course (Bower et al., 2015; Bower et al., 2014). It is important for faculty to prepare in advance and to have some ease and facility in using these tools, which should be functional and reliable. It is also recommended to invite students for training sessions with the technology tools used. (Bell et al., 2013; Bell et al., 2014; Bower et al., 2015; Bower et al., 2014; Francescucci & Foster, 2014). Further, it is important to integrate different teaching and learning strategies to meet different learning preferences, approaches, and strategies (Kyei-Blankson et al., 2014; Novak, Ponting, & Bhattacharya, 2007).

Successful programs instigate back-channel communication between online students and face-to-face students to reduce the burden on faculty and encourage interactions among participants (Bower et al., 2015; Bower et al., 2014,). This requires a degree of letting go from the faculty on behalf of the students. Successful programs also record course sessions to permit all students to access class sessions they could not attend or for revision purposes before exams (Bower et al., 2015; Bower et al., 2014). They use asynchronous communication tools to keep students engaged in the course, such as discussion forums (Asterhan & Schwarz, 2010). Further, they rethink the way the roles of faculties and students are conceived. In this course delivery mode, the strategies of teaching and learning should be more student-centered. Therefore, instructors should enhance students' participation in their learning and support interactions between face-to-face and online students (Asterhan & Schwarz, 2010; Beatty, 2007, 2010; Bower et al., 2015; Bower et al., 2014; Hastie et al., 2010; Szetco, 2014). Educators must position themselves in such a manner to show openness and availability to all the students, whether online or face-to-face (Bower et al., 2014). Moreover, face-to-face students should be encouraged to do the same with online students. Some technological devices could be used to enhance online students' presence (Bell et al., 2014). Finally, educators should encourage cognitive presence among online and face-to-face students. Cognitive presence, which is a component of a community of inquiry, is strongly associated with deep learning. The synchronous aspect of blended synchronous course delivery mode, if properly implemented, can increase the sense of community, and thereby the cognitive presence of all participants (Bell et al., 2014; Cunningham, 2014; Kyei-Blankson et al., 2014).

Blended Synchronous Delivery Mode in the Master Teacher Program (MTP)

The Master Teacher Program (MTP) of the Université de Sherbrooke is a program designed for teachers in Anglophone CEGEPs[1] in the province of Quebec. It grants a graduate degree at three different levels: a graduate certificate in college teaching (GCCT), a graduate diploma in college teaching (GDCT) or a Master's in college teaching (MCT). Table 3 depicts the number of required and elective credits in these programs.

Table 3

Number of required credits and elective credits in the MTP

	Required credits	Elective credits	Total
GCCT	9	6	15
GDCT	25	5	30
MCT	40	5	45

[1] CEGEP is a French acronym for Collège d'Enseignement Général et Professionnel. It refers to the public post-secondary education collegiate institutions and is exclusive to the higher education system in the province of Quebec.

The MTP targets educational psychology, pedagogy, pedagogical content knowledge, and discipline-based learning with a view to deepening the professional abilities and reflective practices of its teacher participants. The MTP was designed and implemented in 1997 and focused on serving the four major Anglophone CEGEPs in the province of Quebec[2]: Dawson, John Abbott, Vanier, and Champlain (Figure 1). A CEGEP is a required step in Quebec's educational ladder. Pre-university programs are equivalent to grade 12 and first-year university. Career programs are usually three years in duration and graduate students are ready to enter the labor market in their chosen field.

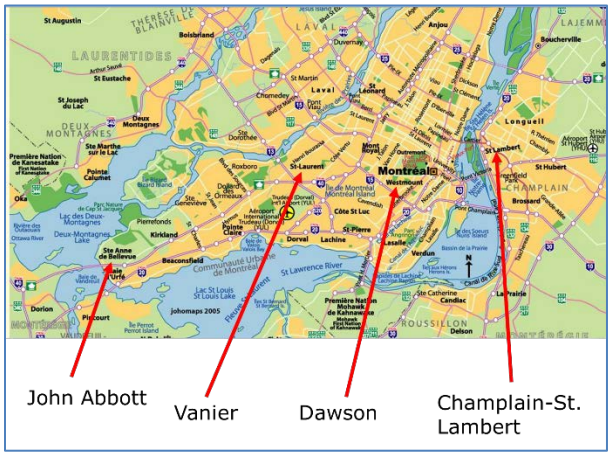

Figure 1

The CEGEPs of the Montreal region

In an effort to serve Anglophone colleges outside of the Montreal region, a blended synchronous course delivery mode was implemented in 2006 and is still in operation. The MTP uses a synchromodal model of blended learning which requires students who live in the Montreal area to attend face-to-face classes, which are held at the four Montreal colleges, while students living outside the Montreal region attend the classes synchronously online. Actual face-to-face classroom time is reduced and replaced with learning and assessment activities that are done asynchronously and synchronously online between class meetings. The MTP has successfully implemented a blended learning synchronous mode of course delivery. The challenges have been addressed and the advantages enjoyed. Table 4 explains how each condition of success borrowed from the literature is operationalized in the MTP Program. The four Montreal colleges originally served have expanded to 24 colleges throughout Quebec. Figure 2 depicts the regions now reached by the MTP.

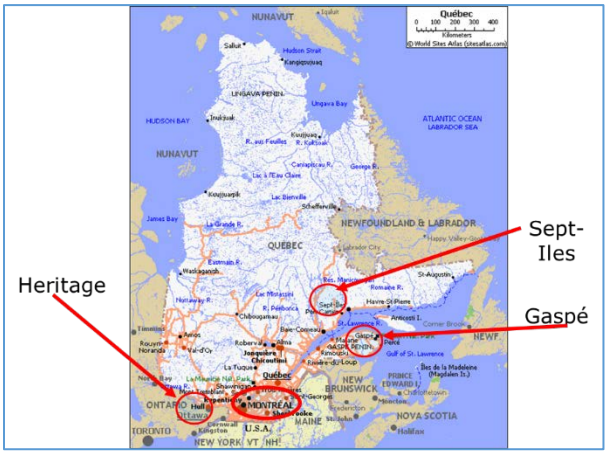

Figure 2

The regions that are reached outside of Montreal by the MTP

The MTP Steering Committee faced many challenges while implementing the program, from maintaining the integrity of the curriculum to dealing with the background noise of online participants who forgot to turn off their microphones while the class was in session. It experienced challenges in terms of inclusion (relationships between face-to-face students and online students), connectivity, background noise, video capturing (technologies), and most importantly, course design.

In an effort to deal with the technological challenges, the MTP Steering Committee of Université de Sherbrooke constructed the *Blended Session Protocol* presented in Table 5.

[2] Dawson College, John Abbott College, Vanier College, and Champlain Regional College which comprises three campuses: Champlain Lennoxville, Champlain St. Lambert and Champlain St. Lawrence.

Table 4

Conditions for success when using a blended course delivery mode as operationalized in the MTP Program

Conditions for Success	MTP Instructional Practice
Integrate this course delivery mode gradually	The blended learning delivery mode was introduced in 2006 when the program was opened to the Anglophone colleges throughout Quebec. We experimented with various modes of communication and used a variety of tools. It was implemented one course at a time.
Seek support from the higher education institution	The Anglophone Deans in the four Montreal-starter colleges have supported this innovation since its inception. They have provided funding for course development, technical support, and social support. A special travel budget provides funding for participants from a distance to attend classes face-to-face at three important points in the MTP program. This has increased social presence immeasurably and has also increased commitment to the program.
Make sound decisions about the technologies and activities to be selected	Through trial and error over the past 10 years we have learned that appropriate sound is probably the most important technical attribute. An investment has been made in technologies.
Limit student numbers	The ideal class size is 15 – 18. If a course has more than 25 registrants, the class is split and a second teacher is brought in.
Employ teaching assistants Use the right equipment	Technical help is available for all courses. All technical support personnel are given a set of high-end, carefully chosen microphones and connectors on loan which they transport from college to college as needed.
Test and practice the use of various technological tools	All technologies are tested before they are used. Before each course begins the instructor meets with the technical support person to review what will be needed to ensure successful learning activities. The Blended Learning Protocol outlines the roles and responsibilities of all concerned: the teacher, the students, and the technical support person.
Integrate different teaching and learning strategies	All instructors use numerous teaching strategies during face-to-face sessions that include interactive lectures, collaborative learning teams, simulation, and case-based learning.
Record course sessions	All course sessions are recorded.
Use asynchronous communication tools	Students have access to WebEx, SKYPE, Discussion Forums, Wikis, Chat, and Email at any time.
Rethink the way the roles of faculties and students are conceived.	A teaching and learning partnership characterizes the relationship between the faculty and students.
Position yourself in such a manner to show openness and availability to all the students.	Faculty make themselves available through online office hours and email. During class sessions, an effort is made to stand in a place where the camera captures the teacher's voice and movements.
Encourage cognitive and social presence among online and face-to-face students.	When learning teams are formed, students from a distance are distributed throughout the face-to-face learning team as opposed to placing all the students from a distance in the same group which is technically easier but does little to encourage social presence for all class members.

Table 5

The Blended Session Protocol

Participant	Instructor	Technical Support Assistant	Faculty Development	Sub-themes of challenges addressed
Upon course notification		Preparation for the course		
		4 weeks in advance		
•Sign into course Moodle page •Install webcam and integrated headset •Complete orientation to WebEx •Prepare for first class	•Visit host college to oversee room selection •Work with TechSupport person to set plan for course	•Visit host college with instructor to select room and meet the instructor and the college's IT department •Work with the instructor in planning IT integration during course	•Work with the instructor and TechSupport to select the best room(s) •Reserve room(s) •Arrange IT setup with college IT, instructor and TechSupport	•course design •technologies
		2 weeks in advance		
	•Set up Moodle course page •Post links to required readings •Post course resources •Invite students to Moodle course page	•Provide orientation to WebEx •Test IT set-up and equipment	•Send out welcome letter to participants •Arrange for visitor access	
		30 minutes before all classes		
•Find a well-lit, quiet place with either dedicated Wi-Fi or hard-wired connection •Sign in and test peripherals with IT	•Set up classroom •Load documents for display •Be available for participant questions	•Set up and test IT *(1 hour in advance)* •Welcome participants •Ask participants to turn on webcam and mic for testing •Give participants rights •Activate recording	•Check with instructor and TechSupport for last minute questions	•course design •relationships between face-to-face students and online students •technologies
		During Class		
•Close mic and webcam •Raise hand to speak •Activate webcam and mic to speak •Keep peripherals activated when involved in discussion •Use Chat to post comments and ask questions	•Display relevant resource •Watch for comments and questions in Chat Respond to raised hands	•Respond to IT problems •Watch for comments and questions in Chat •Set up and maintain breakout rooms, online polling, and online questions		•relationships between face-to-face students and online students •technologies
		End of Class		
•Ask questions to instructor	•Stay online to answer participant questions	•As needed		•relationships between face-to-face students and online students •technologies

This protocol was designed by the MTP Steering Committee by combining lived experience with a review of the literature on blended learning challenges and solutions. It outlines the role and responsibilities of the participants, instructor, technical support person, and faculty developer.

Conclusion

The aim of this study was to present a narrative literature review on blended synchronous course delivery mode. More particularly, it dealt with its advantages, challenges, and conditions for success. Advantages were then classified into four sub-themes (flexibility and access, quality of learning experience, enhanced learning outcomes, and institutional benefits) and challenges into three sub-themes (course design, relationships between online students and face-to-face students, and technologies). Then, conditions for success were operationalized in the MTP Program and its challenges were addressed in building a *Blended Session Protocol*. This protocol was designed by the MTP Steering Committee by combining lived experience. It outlines the role and responsibilities of the participants, instructor, technical support person, and faculty developer. This protocol is used in these graduate programs to ensure a standardized and consistent implementation of this course delivery mode into our courses. It may be useful to any faculty member or instructional designer who wishes to implement this course delivery mode into his/her practice.

This paper has only applied the findings from the literature review and our lived experience. However, it has not addressed the impact and effectiveness of the changes made in the MTP. Future research may consider these aspects and interview instructors and students in the MTP on this matter. It may also verify the advantages enjoyed and the real challenges faced in our programs, as perceived by instructors and students.

References

Abdelmalak, M. (2014). Towards flexible learning for adult students: HyFlex design. In M. Searson & M. Ochoa (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference, 2014* (pp. 706-712). Chesapeake, VA: Association for the Advancement of Computing in Education.

Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. The Sloan Consortium. VIEW ITEM

Asterhan, C. S., & Schwarz, B. B. (2010). Online moderation of synchronous e-argumentation. *International Journal of Computer-Supported Collaborative Learning, 5*(3), 259-282. VIEW ITEM

Bates, A. W. (2015). *Teaching in a digital age*: *Guidelines for designing teaching and learning*. VIEW ITEM

Beatty, B. J. (2007). Hybrid classes with flexible participation options–If you build it, how will they come? In *Annual Convention of the Association for Educational Communications and Technology Annual Convention (AECT), 14*. VIEW ITEM

Beatty, B. J. (2010). *Hybrid courses with flexible participation - The Hyflex design*. VIEW ITEM

Bell, J., Cain, W., & Sawaya, S. (2013). Introducing the role of technology navigator in a synchromodal learning environment. In J. Herrington, A. Couros & V. Irvine (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* (pp.1629-1634).

Bell, J., Sawaya, S., & Cain, W. (2014). Synchromodal classes: Designing for shared

learning experiences between face-to-face and online students. *International Journal of Designs for Learning, 5*(1) 68-82. VIEW ITEM

Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. W., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: Outcomes from a cross-case analysis. *Computers & Education, 86,* 1-17. VIEW ITEM

Bower, M., Kenney, J., Dalgarno, B., Lee, M. J. W., & Kennedy, G. E. (2014). Patterns and principles for blended synchronous learning: Engaging remote and face-to-face learners in rich-media real-time collaborative activities. *Australasian Journal of Educational Technology. 30*(3), 261-272. VIEW ITEM

Cunningham, U. (2014). Teaching the disembodied: Othering and activity systems in a blended synchronous learning situation. *International Review of Research in Open and Distance Learning*. *15*(6), 343-51. VIEW ITEM

Educause. (2010). *7 Things you should know about the HyFlex course model*. VIEW ITEM

Francescucci, A., & Foster, M. K. (2014). Virtual Interactive Real-Time Instructor-Led (VIRI) Learning: The case of synchronous blended learning in introductory undergraduate course. *Journal of Higher Education Theory & Practice, 14*(2), 36-45. VIEW ITEM

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education, 7*(2), 95-105. VIEW ITEM

Hastie, M., Hung, I., Chen, N., & Kinshuk (2010). A blended synchronous learning model for educational international collaboration. *Innovations in Education & Teaching International, 47*(1), 9-24. VIEW ITEM

Hill, P. (2012). Online educational delivery models: A descriptive view. *Educause Review, 47*(6), 84-97. VIEW ITEM

Irvine, V. (2009). The emergence of choice in "multi-access" learning environments: Transferring locus of control of course access to the learner. In G. Siemens & C. Fulford (Eds.), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2009* (pp.746-752). Association for the Advancement of Computing in Education (AACE).

Irvine, V., Code, J., & Richards, L. (2013). Realigning higher education for the 21st-century learner through multi-access learning. *MERLOT Journal of Online Learning & Teaching, 9*(2), 172-186. VIEW ITEM

Kyei-Blankson, L., & Godwyll, F. (2010). An examination of learning outcomes in Hyflex learning environments. In J. Sanchez & K. Zhang (Eds.), *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2010* (pp. 532-535). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Kyei-Blankson, L., Godwyll, F., & Nur-Awaleh, M. A. (2014). Innovative blended delivery and learning: Exploring student choice, experience, and level of satisfaction in a Hyflex course. *International Journal of Innovation and Learning, 16*(3), 243-252. VIEW ITEM

Lakhal, S., Khechine, H., & Pascot, D. (2014, October). Academic students' satisfaction and learning outcomes in a HyFlex course: Do delivery modes matter? In *Proceedings of World Conference on E-Learning in Corporate,*

Government, Healthcare, and Higher Education, 2014 (pp. 1936-1944).

Lakhal, S., & Khechine, H. (2016). Student intention to use desktop web-conferencing according to course delivery modes in higher education. *The International Journal of Management Education, 14*(2), 146-160. VIEW ITEM

McGee, P., & Reis, A. (2012). Blended course design: A synthesis of best practices. *Journal of Asynchronous Learning Networks, 16*(4), 7-22. VIEW ITEM

Miller, J. B., Risser, M. D., & Griffiths, R. P. (2013). Student choice, instructor flexibility: Moving beyond the blended instructional model. *Issues and Trends in Educational Technology, 1*(1), 8-24. VIEW ITEM

Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? *Internet and Higher Education*, *18*, 15-23. VIEW ITEM

Novak, S., Ponting, A., & Bhattacharya, M. (2007). Facilitating online learning communities: The collaborative design of an online support resource. *Journal of Interactive Learning Research, 18*(1), 11-28. VIEW ITEM

Power, M. (2008). The emergence of a blended online learning environment. *MERLOT Journal of online Learning and Teaching, 4*(4), 503-514. VIEW ITEM

Szeto, E. (2014). Bridging the students' and instructor's experiences: Exploring instructional potential of videoconference in multi-campus universities. *Turkish Online Journal of Educational Technology, 13*(1), 64-72. VIEW ITEM

Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education, 65*, 12-33. VIEW ITEM

Tsuji, B., Pierre, A., Van Roon, P., & Vendetti, C. (2012). Web versus face-to-face tutorials: Why I didn't go to class in my pyjamas. In T. Bastiaens & G. Marks (Eds.), *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* 2012 (pp. 802-806). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE)

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