



## **An Analysis of Synchronous and Asynchronous Online Undergraduate Motivation during the COVID Pandemic**

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**Abstract:** In response to the COVID pandemic, university classes across the world were forced online. The literature on online learning has traditionally focused on students who choose online learning. In light of recent shifts in education, online learning continues to increase its prevalence in the education of all students, including those who would not have traditionally chosen this medium. In this research, we explore students' experiences in emergency online learning in two undergraduate business classes. Through the use of the learning platform metadata and student survey responses, this research examines the impact of various pedagogical techniques used in the online classroom and their ability to maintain high student motivation to engage with the learning content. Ultimately, we conclude that providing multiple opportunities for engagement through the use of both synchronous and asynchronous tools is crucial to promoting student motivation, learning, and course success. Implications for classroom instruction and further research is also discussed.

**Keywords:** online learning, synchronous learning, asynchronous learning, learner motivation, pandemic



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# **Analyse des Apprentissages de Premier Cycle Universitaire en Mode Synchrones et Asynchrone Durant la Pandémie de COVID**

**Résumé:** En réponse à la pandémie de COVID, les cours universitaires ont dû être réalisés en ligne partout dans le monde. La littérature sur l'apprentissage en ligne a traditionnellement concerné les étudiants qui avaient choisi l'apprentissage en ligne. À la lumière des récents changements ayant eu lieu dans l'éducation, l'apprentissage en ligne continue de croître dans l'éducation de tous les étudiants, incluant ceux qui n'auraient traditionnellement pas choisi ce médium. Dans cette recherche, nous explorons les expériences des étudiants dans l'apprentissage en ligne d'urgence dans deux cours de commerce de premier cycle. Grâce à l'utilisation des métadonnées de la plateforme d'apprentissage et des réponses des étudiants à l'enquête, cette recherche examine l'impact des diverses techniques pédagogiques utilisées dans la classe en ligne et leur capacité à maintenir la motivation des étudiants à s'engager dans le contenu de l'apprentissage. Finalement, nous concluons que l'offre de multiples possibilités d'engagement par l'utilisation d'outils synchrones et asynchrones est cruciale pour promouvoir la motivation des étudiants, l'apprentissage et la réussite du cours. Les incidences sur l'enseignement en classe et les recherches futures sont également discutées.

**Mots-clés:** apprentissage en ligne, apprentissage synchrone, apprentissage asynchrone, motivation de l'apprenant, pandémie

## Introduction

Modern online learning began in post-secondary institutions as distance education. Students would receive course materials, usually by mail, and work through them at home, with minimal contact with other students or professors (Matthews, 1999). As technology and internet access became more accessible, online learning has expanded world-wide and is a viable alternative to face-to-face instruction (Nicholson, 2007). It has evolved to take a variety of forms, spanning everything from completely asynchronous virtual education with discussion posts, to synchronous tutorials with one-to-one mentoring (Arkorful & Abaidoo, 2015). Now online learning is synonymous with terms such e-learning, virtual learning, and remote learning (Singh & Thurman, 2019). For the purpose of this research, the term online learning will be used throughout.

Online learning was historically an alternative format that appealed to select students (e.g., those who live in remote communities, continued to be employed full-time, with family responsibilities, etc.). The SARS-CoV-2 pandemic of 2019 (referred to as the COVID pandemic throughout this paper) made online learning essential for many students, across all levels of instruction, around the world. The inability to meet face-to-face required governments, ministries of education, administrators, professors, and instructors to pivot suddenly to online learning.

In the Canadian province of Ontario, schools, including post-secondary institutions, were predominantly shut down in March 2020 due to the pandemic, and education was largely moved to online (Westoll, March 2020). With the uncertainty surrounding a return to face-to-face learning, many post-secondary institutions chose to limit in-person classes and offered most classes online (Westoll, September 2020). As such, effective pedagogy in online learning has become an important debate as it has become the only viable option to continue learning during

the COVID pandemic, and questions persist on post-pandemic uptake of online learning. Effective online course design is more important than ever for instructors who have not taught online, students who have not learned online, and for students who will later resume in-person learning.

In this research, we explored student experiences in two online courses with mixed synchronous/asynchronous delivery during the COVID pandemic. We specifically explored student motivation in online settings, where motivation has been found to be a factor in promoting student success (Fryer et al., 2014). We define motivation as students' self-determination to engage with content and course material (Chen & Jang, 2010). This definition is expanded below.

Our research questions are as follows:

1. *How can multiple opportunities for engagement foster motivation in online learning settings?*
2. *How might a loss of community in online asynchronous courses be overcome to maintain high student motivation?*

Motivation was evaluated by examining student participation in the synchronous lectures, accessing the video recordings of the lectures if they were unable to attend, and the extent to which students accessed non-required online course materials. We used a theory-based approach to explore connection between student motivation and engagement, and to show that despite relatively low levels of community, multiple options for engagement in online courses can sustain high levels of student motivation. This research serves to expand the incredibly relevant field of online teaching for students who normally participate in in-person learning. Beyond the need to teach effectively online during the COVID pandemic, the ever-growing prevalence of online education will make these findings increasingly relevant.

# Literature Review

## Online Learning

Kauffman (2015) defines online learning as the adoption of a teaching strategy where all of the content is delivered through the use of technology from a distance, noting that most courses now have some online learning component even if they are in-person. Bhuasiri et al. (2012) add that online learning is a useful tool for enhancing the quality of teaching and learning noting that it “is an innovative approach to education delivery via electronic forms of information that enhance the learner’s knowledge, skills, or other performance” (p. 843). Student success in online learning is reliant on factors such as instructor characteristics, student characteristics, technology, and institutional support (Selim, 2007) but perhaps the most important factor is course design and the use of effective pedagogy to support students (Bughai, 2021; Nguyen, 2015; Pelz, 2010).

Much research has argued that online teaching can have the same outcomes as traditional instruction and, likewise, distance learning offers similar learning gains to traditional instruction (Margoniner, 2014). Others add that distance education, which incorporates interaction through video conferencing and assessments involving collaboration, can produce the same levels of student achievement as in-person learning (Al-Qahtani & Higgins, 2013; Bernard et al., 2004; Nguyen, 2015). Still others have noted that when instructors use technology, such as video conferences (Wieling & Hoffman, 2010) or discussion forums (Kupczynski et al., 2012) to promote collaboration which promotes student motivation (Martin et al., 2014), achievement is the same regardless of whether students learned in-person or online (Al-Qahtani, 2013; Lou et al., 2006). Despite all these arguments, online learning has not been widely successful in

replicating students' satisfaction of in-person instruction (Bernard et al., 2004; Fryer & Bovee, 2016; Nielson, 2011).

### ***Synchronous, Asynchronous and Blended Learning***

Online learning has two delivery types: synchronous and asynchronous delivery. Synchronous delivery mimics in-person learning with video conferencing and real-time collaboration. In contrast, the instructor and students, as well as content delivery, are separated by time and distance in asynchronous settings. For example, forum posts or streaming of lecture material can be accessed on one's own time and can be viewed as creating a transactional distance—that is, a psychological distance is created between the student and the instructor, and their peers (Malinowski et al., 2013).

Students may have preferred synchronous systems for learning that are replicated in face-to-face learning; however, as Offir and Bezalel (2008) share, high achieving students may be able to overcome the transactional nature of asynchronous learning. Asynchronous classes may provide students an opportunity for deeper reflection and time to consider course materials, as well (Watts, 2016).

Often, a blended approach of synchronous and asynchronous delivery is used in online learning (Shahabadi & Uplane, 2015). Mixed method approaches to online learning result in more positive outcomes for students' perceptions of the course and higher student success (Zhao et al., 2005). In the rapid shift to online learning during the COVID pandemic, a blended approach to online learning with both synchronous and asynchronous elements was seen as being the most effective and meaningful approach for students who were accustomed to face-to-face learning (Aboagye et al., 2020). However, regardless of the model of online learning used, both synchronous and asynchronous learning offer similar levels of student satisfaction. This seems to

point to the fact that rather than focusing on which model of online learning to use, the focus on course design is more important than the actual delivery model (Malinovski et al., 2013). These findings suggest the need for research on effective course design to respond to the unique needs of the pandemic and other future events which may require online learning.

### ***Motivation in Online Learning***

Motivation, for the purpose of our study, follows a definition of intrinsic motivation in students, meaning *motivation* is defined along a continuum of students' self-determination to engage with content and course material (Chen & Jang, 2010; Zhu et al., 2020). Such motivation can be fostered and determined through greater student attention to tasks and promotion of students understanding of the relevance of tasks for the overall course (Brooker et al, 2018; Cheng & Jang, 2010; Keskin & Yurdugül, 2020). Our theoretical framework elaborates on our definition and measurement of motivation below (Fryer, 2015; Fryer, Bovee & Nakao, 2014; Fryer & Bovee, 2016; Fryer, Ginns & Walker, 2014). Higher student motivation has the benefit of increasing confidence and satisfaction (Kim & Frick, 2011; Rahman et al., 2021). By definition, engagement and motivation are different, but related. Engagement is understood as the time and effort students put into their education (Kahu, 2013) and is considered the “multidimensional construct that links different components of students positively and proactively involving and committing in the learning process” (Tseng, 2020, p. 2291). There is a need to maintain high student engagement throughout online learning (Bhuasiri et al., 2012; Tseng, 2020). For the purpose of this study, *engagement* is defined as students' effort in the course to understand content and demonstrate their knowledge (Martin & Bolliger, 2018). Student engagement is often a reflection of their motivation (Nygaaard et al., 2013). Not surprisingly, motivated students often outperform unmotivated students (Korpi, 2019).

Especially as student motivation is highest in an in-person setting, a focus on motivation in online settings is crucial (Carrell & Menzel, 2001, Harandi, 2015).

One aspect that has been argued to be critical in supporting motivation is fostering a sense of community amongst students. *Community* is defined here as “a sense of belonging and interactivity among learners in an online course” (Phirangee, 2016, p. 15). Class-wide community is seen to be fostered through interaction with other students (Song & McNary, 2011) as it allows for deeper thinking (Hulon, 2013) and reinforcement of ideas by the instructor and other students (Gallagher-Lepak et al., 2009). This is because a class community is seen as a group of learners meeting for their common interest in learning and can consequently increase student motivation to engage in the course (Cai & Zhu, 2012). All of this is to say that engagement in activities with other students in online classes, especially in synchronous sessions, is important to promote a sense of community and therefore increase motivation.

The best way to support continued student motivation is to blend synchronous and asynchronous teaching as both serve different purposes (Perveen, 2016); synchronous discussions allow for socialization and feedback while asynchronous discussions support higher-level thinking skills (Gierbers et al., 2014). Synchronous sessions allow for peer-to-peer interaction which can increase student motivation (Guay et al., 2008; Järvelä et al., 2010) and can also improve student achievement in fully online settings (Bernard et al., 2014). Abrami et al. (2011) as well as others (Kim & Frick, 2011; Li & Tsai, 2017) add that student motivation in online settings can be supported through feedback and opportunities for students to succeed in challenging settings—which can be facilitated synchronously or asynchronously.

Giesbers et al. (2014) add that “participating in a web-videoconference, which enlarges the interpersonal dynamics, may have provided opportunities for students to mutually influence



each other's motivation to engage in learning" (p. 45). Aytakin et al. (2003) add that when learner motivation is lowered due to the lack of face-to-face learning previously experienced by the learner, a barrier to successful online learning is created. Even in asynchronous classes, the use of video casting can limit the feeling of distance and promote community (Yamagata-Lynch, 2014).

Additional activities have been identified as supporting a sense of community in online classes. For example, synchronous chats have been recognized as a helpful approach to prevent students from feeling isolated (Oztok et al., 2013). The type of dialogue facilitated by the instructor and the engagement of the students in synchronous collaborative discussions have a positive impact on student learning outcomes (Malinovski et al., 2013). What is important is the need to provide opportunities for student-instructor interaction in order to stimulate interest and maintain high motivation (Joyner et al., 2014; Moore, 1989). Other individualistic technologies have been implemented into online learning courses such as podcasts (Bolliger et al., 2010) and watching videos (Hansch et al., 2015); these have been shown to support student achievement and comprehension in online classes, even if they do not necessarily support community building.

In summary, effective online pedagogy requires balancing "tensions between embracing the flexibility that the online space affords to users and designing deliberate structures [feedback opportunities, communication mechanisms, opportunities for student engagement] that will help them take advantage of the flexible space" (Yamagata-Lynch, 2014, p. 189). Thus, it is also necessary to aid students in gaining familiarity with online tools, whether synchronous or asynchronous (Yamagata-Lynch, 2014).

## Theoretical Framework

We base our study in Fryer's (2015; Fryer, Bovee & Nakao 2014; Fryer & Bovee 2016; Fryer, Ginns & Walker, 2014) concept of student motivation and the Bhuasiri et al. (2012) research framework for online learning. Fryer's concept makes clear that student success is largely reliant on students' motivation to engage with course learning materials, and that a high need for motivation is amplified in online settings. Bhuasiri et al. (2012) investigated a viable seven-dimension online learning framework which is divided into three categories: personal dimensions, environmental dimensions, and system dimensions. Personal dimensions take into account multiple variables including learner and instructor characteristics and motivation. Environmental dimensions consider the online learning environment, and system dimensions take into account infrastructure and system quality, course and information quality, and institution and service quality.

Important learner characteristics to bear in mind in online learning include "computer self-efficacy, internet self-efficacy, computer experience, internet experience, computer anxiety, and attitude toward e-learning" (Bhuasiri et al., 2012, p. 846). Instructors in online classes must have good control of technology and provide enough time to interact with students, as this can impact learning outcome (Bhuasiri et al., 2012). For effective online learning, "instructor characteristics include timely response, self-efficacy, technology control, focus on interaction, attitude toward e-learning, attitude toward students, distributive fairness, procedural fairness, and interaction fairness" (Bhuasiri et al., 2012, p. 846).

Factors critical for positive online learning include "social influence, learners' perceived interactions with others, diversity in assessment, and perceived autonomy support" (Bhuasiri et al., 2012, p. 846). System quality "is measured by functionality, ease of use, reliability,

flexibility, data quality, portability, integration, and importance” (Bhuasiri et al., 2012, p. 847). Infrastructure and system quality is measured by “internet quality, facilitating conditions, reliability, ease of use, system functionality, system interactivity, system response, and equipment accessibility” (Bhuasiri et al., 2012, p. 847). All of this is to say that the development of successful online learning is reliant on numerous factors, including learner motivation and sense of community. Making content easily accessible and easy to engage with is a priority for this study, especially as students were forced into online learning due to the pandemic.

Motivation, specifically students’ intrinsic motivation and their desire to engage with the course (Chen & Jang, 2010), can be seen not just in students’ statements, but in terms of student participation, engagement with materials, and continued interaction (Fryer & Bovee, 2016). This is to say that student motivation is expressed, and therefore can be measured, through their engagement with the course. Learner satisfaction with online classes is often tied to sustained, high levels of student motivation to engage with course content, as well as learner and instructor characteristics and system quality (Kim & Frick, 2011). With lower completion rates in online classes, if students are to finish online courses during times of crisis, it is the responsibility of both the instructor and the student to ensure that motivation, and therefore student engagement, remains high for the duration of the course (Fryer, Ginns, et al., 2014). This is particularly challenging in that online learning is often seen as a demotivation tool of students in post-secondary settings (Harandi, 2015). Because online learning may not necessarily offer the same pedagogical affordances of traditional instruction, including guaranteed instructor and student interactions, a focus on effective course design which sustains student motivation is essential in online classes (Fryer & Bovee, 2016). Maintaining high student motivation is essential to the successful completion of online classes (Fryer et al., 2014).

As highly interactive online learning results in higher motivation for undergraduate students (Abou El-Seoud, 2014), course design, serving as a measure of system quality, must be taken into account to support student motivation. Students' valuation of tasks—that is, whether or not they view the activities they are completing as worthwhile—is important in promoting motivation and must be given extra consideration in online learning (Fryer, Bovee et al., 2014). Given the nature of the pandemic and the fact that students who would not likely have chosen online learning were forced into online classes, supporting high levels of student motivation online will be key to students' success. Ultimately, developing a course which provides multiple, meaningful opportunities for engagement is crucial to supporting development of students' motivation. It is with this focus that this research study was developed.

## **Research Design and Methodology**

### **Participants**

This research took place in two second-year, half-credit, business courses at a small liberal arts college in a large urban center in Ontario, Canada during the 2020-21 school year. Each course was offered entirely online in response to the COVID pandemic. Courses were different focus areas, Class A was Organizational Behaviour and Class B was Equity Diversity and Inclusion in Organizations, but the themes taught in both courses were similar. Students in this course were geographically located in Canada, India, Europe, South America, China, and Africa.

Participants included the course professor (third author) and 77 students. Ethics approval was received prior to the study commencing. In total, 41 students consented to participate in the completion of a survey regarding their experiences (17 males, 24 females). Surveys were constructed by the course instructor (third author) to gain a better understanding of student

engagement with course content. The survey consisted of 48 questions in total. Questions included yes/no/sometimes questions related to students' engagement with material. In total—in the interest of brevity and focus on our research question—we report on responses to nine questions which exemplify student motivation and engagement in the courses. There were options for open-ended responses requesting information on course resources and course structure. Specific dichotomous questions with yes/no, and open-ended questions related to the skill-based trainings, such as an intersectionality professional development module, were also included. Every student who consented to participate was majoring in Bachelor of Management and Organizational Studies (BMOS).

## **Procedure**

The courses were offered through an online learning management system (LMS) used at the university. All course content, including video conference access, forum posts and assignments are posted in various tabs contained on the same LMS. Both classes (Class A and B) offered a synchronous class component of 1.5 hours which was offered via videoconferencing ([Table 1](#)). Class A had 40 students and ran Monday mornings and had 10 total synchronous classes. Class B had 37 students and ran Friday mornings and had 12 synchronous classes. The synchronous component mirrored a traditional lecture/tutorial component and included teaching and discussion (whole class and small group breakouts).

Classes were recorded, and the related class slides and videos were posted online for students to access for up to 72 hours after the class. It should be noted that the posting of the videos was not required by the post-secondary institution. The remaining 1.5 hours of course work was intended for required online active learning activities (e.g., discussions, reflections, watching videos, listening to podcasts, skills-based learning tasks, etc.; [Table 1](#)). Some of these

activities such as discussion posts were graded where others, such as watching videos, were not marked but rather, helped students to complete course material. Each week, there were required weekly readings from the course textbook. All course content (i.e., active learning or assigned, or optional content) were related to the weekly topics and were similar in both classes.

**Table 1**

*Weekly Time Distribution Expectations for Course*

<b>Component</b>	<b>Duration (hours)</b>	<b>Activities</b>
Synchronous	1.5 hours	<ul style="list-style-type: none"> <li>Attend online lecture via web videoconferencing. (Lecture also posted online for future viewing)</li> </ul>
Asynchronous	1.5 hours	<ul style="list-style-type: none"> <li>Discussion forum posts/reflections based on course material (30–45 min/week).</li> <li>Watch videos/podcasts (0–30 min/week).</li> <li>Complete skill-based learning tasks such as training certifications (0–60 min/week).</li> </ul>

Due to the geographical disbursement of students, and varying time zones, attending the synchronous classes was not mandatory. However, students who could not attend the synchronous classes were encouraged to watch the video and review the class slides.

The only “required” content from week to week were the textbook readings. These readings were deemed sufficient for completing any of the active learning components of the course during the 1.5 hours beyond the lecture (offered synchronously then made available to students by video). Synchronous lectures consisted of an expansion on course content, and opportunities for group discussion of material. This is not to say that students would not benefit from further engagement with additional materials, but rather, due to the stresses caused by the

pandemic, the course was structured so that students could complete course content solely through textbook readings. Thus, engagement (Martin & Bolliger, 2018) beyond the required weekly textbook readings was viewed as a demonstration of motivation for the purpose of this research. In other words, while attendance at synchronous classes was important, engagement with non-mandatory materials demonstrated student motivation, the focus of this study. At the conclusion of the term, students who consented to participate in the research completed an online survey related to their experiences.

## **Data Sources**

Data sources include anonymized data from the LMS. Data included the number of students logged into the synchronous session (and the duration of time logged in), the number of synchronous classes missed, whether students accessed the video or slideshow for classes they had missed, and the number of online resources accessed by students. As Fryer's (2015; Fryer, Bovee & Nakao 2014; Fryer & Bovee 2016; Fryer, Ginns & Walker, 2014) theory of student motivation points out, student engagement is essential to sustaining student motivation and ultimate success in the course, therefore focusing on engagement is crucial to understanding this piece. Additionally, focusing on Bhuasiri et al.'s (2012) framework of engagement, these surveys serve to help understand the sense of community (Phirangee, 2016) students felt and the implications for their satisfaction and motivation. While the synchronous component of the course was the primary way for students to interact directly with other students, and therefore foster community, the geographic distribution of students prevented the community-building component of the course from being mandatory. Other community-building aspects were not intentionally developed into the course, and we were therefore interested if students would feel a low sense of community, and if this would decrease their motivation.

Students who agreed to participate in the survey answered questions regarding various aspects of the course and about their own learning (see [Appendix A](#) for survey questions reported in this research). In addition, student responses to open-ended questions were included to narrate the findings and add student perspectives. These responses were not intended to indicate themes in the data, but rather serve as case studies of specific student responses.

In relation to the question, “If you are able to choose when online (synchronous) lectures or meetings take place (date and/or time), are you more likely to attend?”, it should be noted that scheduling at our university is central and therefore students do not have a say on when courses are scheduled. However, this question was included to gather a sense as to whether students would be more likely to attend if they could schedule their courses, especially given the geographic distribution of students.

In relation to the question, “Online learning in this course did give me a sense of community”, we continue to use Phirangee’s (2016) definition of community defined earlier in our study. Students were not briefed on this as we wanted them to be able to respond to their own feelings of community in the course without feeling restricted to our definition.

All questions were optional, and therefore, not every question received a response from every student. We use descriptive statistics to report the responses from the students and analysis of the LMS data. Quotes from students are drawn from their answers to the open response questions on the survey.

## **Data Analysis**

Descriptive statistics were used to summarize survey responses as well as metadata from the LMS. For open ended questions, students were grouped according to key ideas and themes. Those reported in this study were selected for their explanatory potential.



## Results and Discussion

Objective data from the LMS revealed that 42% of students ( $n = 77$ ) missed more than half of the online synchronous classes. In total, the average percentage of classes missed by students from Class A was 32% (3.2 classes missed/student) and the average percentage of classes missed from Class B was 49% (5.83 classes missed/student). Very few students attended every synchronous session across both classes.

In response to the survey question “What [portion] of the online live (synchronous) lectures did you attend?” 31% ( $n=12$ ) answered ‘All’, 56% ( $n=22$ ) answered ‘Most’ and only 8% ( $n=3$ ) and 5% ( $n=2$ ) answered ‘Rarely’ or ‘None’ respectively

Most students self-reported attending most of the synchronous sessions. Though 87% of students claimed to have attended either ‘most’ or ‘all’ of the synchronous classes, metadata shows that only 58% of students attended at least half of the classes, showing students inflated their attendance responses. This may point to a feeling of community in students as they felt like they had attended more classes than they did.

Students had three days to view the video of the synchronous class after it was posted. As [Table 2](#) shows, in total, 10% of students who missed classes viewed the posted video, a further 11% also looked at the slideshow, and 9% looked at both. It should be noted that students may have reviewed the slideshow at another point. For example, students who did not view materials in that ‘catch-up’ window, accessed a mean of 68.03 other online resources during the course. They may have looked at the print material at some other point in the course. It appears that students who missed class did not access video material, even if they may have accessed other content. As there was no final exam in either course, but rather a series of small assessments tied

to weekly material, students had no incentive to ‘cram’ a period after the course content was delivered.

**Table 2**

*Resources Accessed When Students Missed Synchronous Lectures*

	<b>Number of Total Classes Missed</b>	<b>Average Number of Times Videos are Watched per Student</b>	<b>Average Number of Times Slideshows are Viewed per Student</b>	<b>Average Number of Times Both Classes Viewed the Resources per Student</b>
<b>Class A (38 Students)</b>	129	0.37 of 10 videos (4%)	0.32 of 10 slideshows (3%)	0.18 of 10 classes (2%)
<b>Class B (36 Students)</b>	210	0.56 of 12 videos (5%)	0.72 of 12 slideshows (6%)	0.61 of 12 classes (5%)
<b>Total</b>	339	34	38	29

Of the 64 students who missed at least one synchronous class, 67% (n = 43) accessed either the video, the slideshow or both. Of these 43 students who accessed resources when they missed class, only 42% (n = 18) accessed at least one of the resources for more than half of the classes that they missed. Further, of the 38 students who missed more than one but fewer than half of the online synchronous classes, 42% (n = 16) accessed resources for at least half of the classes that they missed. Of the 28 students that missed more than half of the synchronous classes, 7% (n = 2) accessed resources for more than half of the classes that they missed. Regardless of the delivery format, many students did not take up the opportunity to review the ‘class’ instructional material. Students, however, claimed to have frequently watched the videos for classes they missed, as evidenced by their responses to survey question, “If I did not attend an online live (synchronous) class, I watched the recorded video afterwards.” Our collected

student responses indicated that 64% (n=25) responded 'Yes' they had watched the recorded video for missed sessions, 18% answered 'Sometimes,' and an additional 18% answered 'No.'

In total, 66% of students (n = 27) said that they would not have preferred to have a lecture posted online for independent viewing over a live synchronous lecture. Interestingly, as noted in [Table 4](#) and [Table 5](#), 69% of students enjoyed online learning in this course more than in other courses, though only 51% of students noted that the class provided them a sense of community. Given the only attempt to facilitate community in the course was the non-mandatory synchronous session, this result is unsurprising and likely speaks to greater need for focus on community development in online classes.

The most common reason for not attending synchronous classes was personal (n = 23) with the second most common reason being inconvenient class time (n = 12). From both classes, 67.5% of students claimed that if they were able to choose online synchronous class time, they would be more likely to attend.

Resources posted online were accessed pretty regularly by students. The total number of resources accessed by all 77 students across both classes was 5374 resources. See [Table 3](#) for a specific breakdown of the number of resources accessed by students.

**Table 3***Number of Online Resources Accessed by Students*

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
<b>Class A (38 Students)</b>	1	189	58.71
<b>Class B (36 Students)</b>	10	170	87.31
<b>Both Classes</b>	1	189	69.79

The data suggest that students were more motivated to access certain components of the online course content. For example, despite high absentee rates at synchronous classes, the majority of students (67%) accessed the optional online course content material for at least one of the classes in the three days immediately following the synchronous class. Additionally, even when students may not have accessed lecture material, a mean of 68.03 open other resources were accessed including readings, podcasts and videos, demonstrating a sustained level of engagement (Martin & Bolliger, 2018) even when students were not in class. When students were given the choice, they frequently accessed the non-traditional material in place of the traditional lecture-based materials. As discussed by Abou El-Seoud (2014), multiple opportunities for engagement serve as multiple avenues for success, reiterating Bhuasiri et al.'s (2012) framework of the seven dimensions for e-learner success. These factors promoted an interactive class which seemed to support high levels of student engagement.

Interestingly, 87% of students claimed to have attended either 'most' or 'all' of the synchronous classes though metadata shows that only 58% of students attended at least half of the classes. This shows that perhaps students' motivation in the class was high to attend various classes and this high engagement resulted in students feeling as though they had a grasp of the

class material. Even when students were not necessarily attending class, the multiple options for engagement may have provided viable alternatives to learning outside of synchronous class time. Consistent with the findings of Bhuasiri et al. (2012) and Yamagata-Lynch (2014), there is a need to provide multiple opportunities for engagement and create a flexible online learning environment in order to keep student motivation high.

What is obvious from these results is that students who missed synchronous classes often did not watch the recorded videos or access resources for classes that they missed. Moreover, the more frequently students missed class, the less they accessed resources. As discussion forum posts and reflections were mandatory, student completion of these assignments cannot be seen to demonstrate their motivation as these were required assignments. This lack of engagement seems to indicate that as students drift further away from attending synchronous classes, their motivation decreases as they are not receiving synchronous motivation (Giesbers et al., 2014). This also seems to point to the fact that an online course is not necessarily a barrier to student motivation and engagement, but rather, the design of the online learning space (i.e. non-mandatory lectures) has implications for student engagement with course content. However, most students, even those who did not attend synchronous class or watch the recording, did typically access the multimodal resources that were posted online. This is demonstrated by the fact that a mean of 69.79 resources were accessed between both classes, demonstrating the need to provide multiple opportunities for engagement in online settings. It is particularly important to note that multiple resources and activities helped to promote at least some engagement throughout the course, even when they were not participating in traditional sessions. As Fryer et al.'s (2012, 2013, 2016) motivation theory notes, this increase in engagement is tied to a sustained level of motivation which ultimately supports students success. Without these

multimodal resources to access, students would likely still not have engaged with the traditional course components, and engagement may have been compromised.

What is particularly interesting is that even with such high absentee rates from classes, students still did not wish to have lectures taped and posted online. Rather, students seemed to find value in the in-person classes to boost their own engagement and connection with their professor and other classmates. Instead, especially as 67.5% of students claimed they would be more likely to attend synchronous classes if they could choose a class meeting time, there is evidence that greater flexibility is required to support students. The following student quote from an open-ended response to the question “How did you find the learning in this course compared to other courses?” demonstrates that students found the synchronous sections to be a great motivator, and therefore, it is important to allow flexibility in scheduling so that all students can engage with the learning:

*[I] found that the online learning in this course was far better than other online courses I am enrolled in ... Also, I really liked that we had an online live lecture. Not being able to attend in-person classes, I sometimes felt isolated and disconnected from my professor and classmates. I really liked being able to interact with the class over Zoom (using polls, answering and asking questions, etc.) and felt that this made the class a lot more engaging and exciting. I also found it helpful that xxxx would frequently pause the lecture to ask students if they had any questions about the content. In most of my other online classes (most of which are asynchronous videos), it can be difficult to get clarification on course content ... With readings, videos, live lectures, and activities, I was much more engaged with the content and enjoyed the learning process.*

This motivation is consistent with the findings of Kim and Frick (2011) in that high levels of engagement was seen to promote high levels of student motivation in course content.

Additionally, students appeared to prefer the learning in this course to other courses, though they reported not necessarily feeling a sense of community. See [Table 4](#) and [Table 5](#) below.

**Table 4**

*Student Perception of their Online Learning Experience*

The online learning format in this course was \_\_\_\_\_ compared to other courses.

<b>Selected Answer</b>	<b>Number of Students Who Selected This Answer</b>	<b>Percentage of Students Who Selected This Answer</b>
Better	27	69%
Similar	12	31%

*Note: (n=39)*

**Table 5**

*Student Perception of Community Created in the Online Class*

Online learning in this course did give me a sense of community.

<b>Selected Answer</b>	<b>Number of Students Who Selected This Answer</b>	<b>Percentage of Students Who Selected This Answer</b>
Yes	21	51%
No	20	49%

*Note: (n=41)*

The fact that 69% of students preferred the learning in this course to other courses is particularly interesting in that it did not seem to be tied to students’ sense of community in this class. This indicates that perhaps the multiple options for engagement allowed students to access content in their preferred format which resulted in higher engagement. To illustrate, 52% of students reported feeling a sense of community in this class, however, this did not seem to be abnormal from other courses during emergency distance learning. For example, one student said “I found that this course was much better organized online than my other courses ... However, I

still felt a strong disconnect between myself and my classmates, which is consistent for every course I have this semester.” This disconnect is likely a result of the fact that the COVID pandemic required professors with minimal online experience to teach online, forcing students who would rather prefer to learn in-person to learn online. This is supported by the fact that online learning, especially for students who prefer traditional learning, can be seen as a demotivation tool (Harandi, 2015). Therefore, it is critical that post-secondary institutions provide professional development and training for instructors of who are teaching online courses (Betts, 2009). However, as this student noted, they did like the organization of the course, though simply increasing the number of opportunities for engagement may not be enough to shake the social isolation and lack of community for all students (Perveen, 2016). It is interesting to note that, despite the lack of community noted, as this student found this course better organized than other classes, organization can still improve student motivation, demonstrating that multiple access points may offset some sense of lack of community and support student motivation online (Fryer et al., 2014; Korpi, 2019).

Though only half of the students reported feeling a sense of community, which according to Bhuasiri et al. (2012) would be a negative for their online learning experience, over two-thirds of students reported high satisfaction with the class. Therefore, high satisfaction rates in the online learning in this class compared to other classes appears to be tied to the variety of resources and options to access course material. For example, in the survey in the section “Do you have anything else you would like to add?” one student said:

*I enjoyed how there were multiple ways for us to learn and it was not just an online lecture for 3 hours. This has been very helpful since we are learning from home, some of my other courses are just lectures and it makes me uninterested in the course mostly because I do not want to sit in my bedroom*



*alone and listen to someone talk for 3 hours. So the way you structured the course has kept me engaged.*

This supports the fact that high student motivation is linked to higher satisfaction (Kim & Frick, 2011) however, this motivation does not necessarily need to come in the form of synchronous sessions and a strong sense of community. This is not to suggest that a sense of community is not important to all students and beneficial for their learning (Järvelä et al., 2010), but rather suggests that some students may receive their motivation from different sources. Though our theoretical framework of Bhuasiri et al. (2012) emphasizes the need for a sense of community, this study demonstrates that this may not be necessary for all students. This implies that, although student motivation is often a result of a sense of community in which students are held accountable by both their professor and their peers, multiple engagement points and options in terms of engagement may promote high student motivation—even when a sense of community is challenging to build. It is also important to note, that while almost half of the students did not feel a sense of community, the short duration of these classes—10 and 12 classes respectively, over about three months—may have had as much to do with the lack of community as the actual course layout, and this is evident by the high levels of student satisfaction across the class.

## **Implications and Conclusion**

The COVID pandemic resulted in many educational institutions rapidly moving to online learning. The extent to which the COVID pandemic transforms the pedagogy and the frequency of online learning across institutions remains to be seen and much speculation is occurring. This research is important not just in that it offers insights about this unique moment in our collective global history, but rather the implications for student motivation in online learning settings is a key finding for the online learning field more broadly.

In this research, we explored the impact of various pedagogical techniques in maintaining high student motivation measured through high levels of engagement in undergraduate business classes forced online by the COVID pandemic. These classes were designed to be flexible for students, offering multiple opportunities for engagement in an attempt to compensate for interaction lost in face-to-face learning. Specifically, we evaluated student motivation levels through exploring their engagement with non-mandatory asynchronous activities. While absentee rates at synchronous sessions were high in both classes, student LMS data, as well as survey responses revealed that students appreciated the flexibility offered by this class and the various online content provided beyond the textbook and the lecture. Absentee rates that were reported in this study may also be partly explained as a result of the pandemic. As is the case with everyone, the stress of the pandemic has impacted students in numerous ways, and the resulting lack of engagement and decrease in motivation is not indicative of their abilities as students, but rather is reflective of the challenges of learning during a pandemic.

Where past studies have looked primarily at the role of motivation in traditional online learning, this research, situated in an emergency online learning setting, provides a framework for effective online course design. While many of these students would not have chosen to participate in an online course, and may not choose to again, designing courses that are effective in bridging learning to a point where in-person learning can take over again is critical to support students not just during the pandemic, but potential future crises, or even for students who are not able to attend in-person classes for any reason. To keep students motivated in their learning, this research demonstrates that variety and choice in online content is key. While the non-mandatory element of lectures was a product of the pandemic, high absentee rates demonstrate that future courses may be well-served to require a synchronous component to support

development of class community. However, despite student preferences for how content is received (synchronous versus asynchronous) providing multiple resources for students to engage with outside of traditional lecture material in online courses has the potential to stimulate engagement and thus continued motivation.

This research serves to extend on the growing body of work that seeks to understand what pedagogical techniques will motivate students, especially in online settings. While our research exists in the unique context of the global COVID pandemic, our results are far reaching. For example, in the development of online classes, the opportunity to lean away from strictly textbook work and to provide alternative ‘readings’ may encourage additional student motivation to look at materials and will support their learning. Additionally, where possible, hosting synchronous lecture sessions with interactive components reinforces student accountability to their instructor and their fellow students. This in turn supports sustained student motivation through the duration of the course. Variables such as student and instructor characteristics, the online learning environment, and system quality (Bhuasiri et al., 2012) are key factors alongside effective course design (Bughai, 2021; Nguyen, 2015; Pelz, 2010) in supporting student motivation and online learning success.

An obvious limitation of this study is that our research took place in only one term in two classes taught by the same instructor. Future research should take a more longitudinal approach to understand how high student motivation may be maintained across an entire year or even across an undergraduate degree. Moreover, a comparative analysis of how the techniques used in this research may work in classes across various disciplines would provide meaningful insight into ways that online learning can be leveraged to support more students. This study did not take into account actual achievement. For the most part, students in these courses did well. The

decision to not include student achievement was largely mitigated by the fact that grades were not the focus of this work which aimed to understand online learning engagement during a unique moment in our collective history, the COVID pandemic.

Our research provides a mechanism by which we can work to develop the ideas of promoting synchronous sessions in online learning environments as well as using non-traditional resources in place of traditional course readings. Given our findings, three persistent questions emerged:

1. *Why, despite high levels of student motivation, was attendance at synchronous sessions so low?*
2. *Does mandatory attendance at synchronous sessions result in higher levels of engagement and motivation?*
3. *How might continued low attendance at synchronous sessions impact student motivation and engagement with course materials?*

Future research could expose the impact of such factors on students' online learning success.

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# Appendices

## Appendix A

### *Survey Questions*

1. I am a [business] student.
  - a) Yes
  - b) No
2. What [portion] of the online live (synchronous) lectures did you attend?
  - a) All
  - b) Most
  - c) Rarely
  - d) None
3. If I did not attend an online live (synchronous) lecture I watched the recorded video afterwards.
  - a) Yes
  - b) Sometimes
  - c) No
4. I would have preferred to just have a taped lecture posted online that I could watch when it was convenient.
  - a) Yes
  - b) No
5. The online learning format in this course was:
  - a) Better than other courses.
  - b) Similar to other courses.
  - c) Worse than other courses.
6. I missed attending live online classes because:
  - a) I was out of the country in another time zone.

- b) Class time was inconvenient for me.
- c) I did not find the content useful.
- d) I do not like learning online.
- e) I only missed online classes due to personal circumstances.

7. If you are able to choose when online (synchronous) lectures or meetings take place (date and/or time), are you more likely to attend?

- a) Yes
- b) No
- c) Maybe

8. Online learning in this course did give me a sense of community.

- a) Yes
- b) No

9. Any other comments about the online learning in this course? In particular, please comment on any differences between this online course and others you may have taken.