

**Strategies to Improve the Use of Live Synchronous Meetings
in Blended, Remote, and Online Courses**

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Abstract

Distance education over the years has been defined by the ability of students to learn at any time, from anywhere. Thus, it is not surprising that most online courses rely solely on asynchronous text-based online communication, such as email and discussion forums. However, the COVID-19 pandemic and the rise of emergency remote teaching have sparked an increased interest in using web conferencing software (e.g., Zoom, WebEx, Google Meet, Microsoft Teams) to hold live synchronous meetings, often on a set day and time each week, instead of asynchronous discussions. But as convenient as it can be to move classroom instruction to live synchronous meetings, instructors and students have quickly experienced some drawbacks to using this mode of instruction. Given this problem, we set out to curate a list of strategies to improve the use of live synchronous meetings based on the literature and our combined experience designing and teaching online over the years. In this paper, we describe some affordances and constraints of live synchronous meetings and then describe some strategies that instructors can use to improve their use of these meetings, whether that be in a blended, remote, or online course.

Keywords: Synchronous, Online teaching, Video conference, WebEx, Zoom, Google Meet, Microsoft Teams

Introduction

Distance education has come in many forms over the years (Lowenthal et al., 2009; Moore et al. 2011). The most popular is the type of online learning offered in schools and colleges. In fact, even before COVID-19, millions of students were taking at least one online course each year (Allen & Seaman, 2017; Lederman, 2018). Most online courses today rely predominantly, if not solely, on asynchronous text-based communication (Oztok et al., 2013; Peterson et al., 2018). Asynchronous text-based communication, among other things, enables students to work on their own time each week as they meet course deadlines. Despite the widespread use of this form of communication, there have always been challenges with asynchronous text-based communication (Lowenthal, 2009; Lowenthal & Dunlap, 2020; Oztok et al., 2013). Perhaps one of the most notable is the lack of visual cues and the time it takes for conversations to develop (Fadde & Vu, 2014).

Synchronous video-based communication—whether one-on-one (e.g., Skype, FaceTime) or many-to-many (e.g., Zoom, WebEx, Google Meet, Microsoft Teams)—can address some of the challenges of asynchronous text-based communication. For instance, synchronous video-based communication happens in real time and therefore can be more expedient and help establish a sense of immediacy and social presence (Belt & Lowenthal, under review; Fadde & Vu, 2014). However, even with the benefits of synchronous video-based communication, many instructors have avoided using this form of communication in their online courses (Liu & Alexander, 2017; Themelis, 2014). Some of the reasons for this include: (a) the belief that students enroll in online courses to avoid having to be in class at a specific time or day, (b) fear of technological and bandwidth issues, (c) scheduling/time zone issues, and (d) equity concerns, to name a few (Bali & Meier, 2014; Liu & Alexander, 2017; Lowenthal et al., 2020; Themelis,

2014). Further, we have found that some institutions even have policies that instructors teaching fully online courses cannot require students to attend synchronous meetings when taking “online courses.” We posit that policies like these are likely to increase after the pandemic is over to help institutions, faculty, and students differentiate between “remote” and “online courses.”

The COVID-19 pandemic, though, has likely changed many instructors’ perceptions of synchronous video-based communication simply because of instructors’ increased experience and use of synchronous meetings, whether that be from moving their in-person face-to-face courses into some type of remote or online teaching format, attending department meetings, and/or presenting at professional conferences (see Lederman, 2020a, 2020b; Lowenthal et al., 2020; Lowenthal et al., 2021). In fact, some early critics of online learning have even expressed their appreciation for the ability to continue teaching in a remote format, while staying safe, during the pandemic (Schaberg, 2020). While nobody knows what the future might hold, it is reasonable to expect an increased use of synchronous meetings in our schools and colleges (Lowenthal et al., 2021). However, as convenient as it can be to move in-person face-to-face classroom instruction into a synchronous meeting format, instructors and students have quickly experienced some drawbacks to using this mode of instruction (Lowenthal et al., 2020; West & Borup, 2021). Given this problem, we set out to curate a list of strategies we identified from the literature, and our combined experience designing and teaching online over the years, to help instructors improve their use of live synchronous meetings. In this paper, we describe some affordances and constraints of live synchronous meetings and then describe strategies that instructors can use to improve their use of synchronous meetings—whether that be in a blended, remote, or online course—by focusing on things that can be done before, during, and after a synchronous meeting.

Affordances and Constraints of Synchronous Meetings

Previous research on educational technology and online learning suggests that it is not the technology but rather how one uses it that makes the difference in online courses (Gundawardena & Zittle, 1997; Rourke et al., 1999). In many ways, this dates back to the Clark and Kozma debate on how media impacts learning and the importance of how instruction is designed (see Clark, 1994; Kozma, 1994). However, at the same time, educational and communication technologies are not neutral; they each have some inherent affordances and constraints and users must always consider the usability and accessibility of the tools they use (Lowenthal et al., 2020; Lowenthal & Mulder, 2017). Before turning to some ways to improve the use of synchronous meetings, we want to directly address some of the inherent affordances and constraints of using synchronous meetings in blended, remote, or online courses.

Affordances of Synchronous Meetings

One of the most challenging aspects of online education is bridging the transactional distance that exists between students and instructors located in different physical space and time (Moore, 2007). Learning happens within a social context and through social interaction. Some students struggle, though, with interacting using only asynchronous text-based communication (Gao et al., 2013; Murphy & Coleman, 2004). Synchronous meetings, on the other hand, enable students to interact in real time and to see and hear each other (Lowenthal et al., 2017). Having discussions in real time is an efficient use of time and enables people to immediately ask follow-up or clarifying questions. Further, having the ability to look someone in the eyes (e.g., via a webcam) and see someone's body language can help increase affective communication and in turn decrease transactional distance and improve social presence (Fadde & Vu, 2014; Hrastinski, 2008; Park & Bonk, 2007; Parker & Martin, 2010). Additional affordances include the ability to

share materials (e.g., presentation slides, handouts, applications), complete polls, collaborate in breakout rooms or on whiteboards in real time, record meetings that can be watched or re-watched at a later time, and provide captions that can benefit all learners (Linder, 2016; Snyder & Garner, 2020).

Constraints of Synchronous Meetings

Despite the aforementioned affordances, there are some inherent constraints with synchronous meetings in general as well as limitations to how instructors might use these meetings in blended, remote, and online courses, especially during COVID-19. For instance, as previously mentioned, it can be difficult to find a time that works for everyone to attend synchronous meetings when students might live in different time zones and/or are taking an online course because of their busy lives (Bali & Meier, 2014). Participants in synchronous meetings also often experience technological difficulties, including poor audio and video quality (Lowenthal et al., 2021). Some participants also report feeling exhausted or complaining of “Zoom hangovers” when having long or back-to-back live synchronous meetings (Schulman, 2020). Issues of equity can also become apparent when students are forced to turn their webcam on and in turn reveal things about themselves or their life that they wish to keep private (Bali & Meier, 2014), but at the same time synchronous meetings can feel artificial and dreary when nobody turns on their webcam (see Day & Verbiest, 2021; Lowenthal et al., 2021; Turner, 2022). Live synchronous meetings can also easily turn into hour-long teacher-centered online lectures (Lederman, 2020b). Last but not least, these live synchronous meetings almost encourage multitasking and can tax students’ focus (Lowenthal et al., 2020).

Strategies to Improve Live Synchronous Meetings

Live synchronous meetings, like any education and communication technology, are not inherently good or bad. Rather, their effectiveness depends largely on why and how instructors use them. Given educators' increased use of live synchronous meetings during the COVID-19 pandemic, we set out to curate a list of strategies to help educators improve their use of live synchronous meetings. This list of strategies is based on the literature and our experience designing and teaching online over the years, as well as the second author's experience researching online learning over the past two decades. We briefly describe these strategies below. We have separated these strategies into what should be done before the semester begins, what should be done before and during each synchronous meeting, and what should be done after the meeting.

Before the Semester Begins

Perhaps the most important way to help ensure a successful live synchronous meeting is to do some initial planning and preparation. Below, we will highlight strategies instructors should use before any of their synchronous meetings start. Note that some of these strategies are good classroom pedagogical practice regardless of the mode, format, or technology; as Ragan (1999, p. 22) once said, "good teaching is good teaching."

Identify Purpose and Need

Before adding synchronous meetings to a course, an instructor should identify the purpose and need for the meetings (Seifert, 2019). The use of these meetings should align with the course outcomes and the syllabus should clearly state when and how these meetings will be used at the start of the course. However, there are times (e.g., during emergency remote learning or with HyFlex courses) where weekly live synchronous meetings are not only expected but

possibly required. Even in those situations, though, thinking through how an instructor and students are going to interact in each meeting and whether or not the full class needs to attend the synchronous meeting is important.

Set Expectations for Live Synchronous Meetings

It is important to set expectations with students (deNoyelles, 2015). Ideally, if instructors plan to use synchronous meetings in a given course, they should notify students when the meetings will be held, what application they will use (e.g., Zoom), the purpose of the meetings, and how students are expected to participate at the beginning of the semester. Instructors should also clarify as many details as possible (Abney & Conaster, 2020; Simon, 2018). For instance, is attendance mandatory? Are students expected to have their webcams on? Should students use headphones? These types of policies and discussion protocols might already be established by the program, department, or even college or university offering the course; however, it is important that the instructor reminds students of these expectations at the start of a semester (Dunlap, 2009).

Schedule Live Synchronous Meetings

When possible, instructors should schedule all of the synchronous meetings at the beginning of the semester (or, when appropriate, after seeking feedback from students on the best times to meet, such as with a Doodle poll). Meetings can always be canceled if need be. Often these meetings can be scheduled using students' calendars (whether that is in a learning management system or using a university-supported calendar like Google Calendar or Outlook), which can help students remember when each meeting is scheduled (Lowenthal et al., 2017).

Provide Access, Resources, Support, and Practice with the Web Conferencing Application

Instructors need to ensure that students have access to the web conferencing application (e.g., Zoom). Among other things, students need to know if they need an account, an access code, or to use a certain email address to join the meeting as well as whether or not they need to install any software on their computer or phone before entering the meeting. Instructors should not assume that students know how to use synchronous communication technology for educational purposes. To help ensure students are prepared for the synchronous meetings, instructors should provide students an opportunity to practice using the web conferencing application, whether that be for testing their audio, video, or screen sharing, especially before any high stakes assignments like class presentations (University of Melbourne, 2021; Zoom, 2020). Students should also have access to any resources, whether that be in the form of technical support or course readings, before any meeting starts. Instructors also need to pay attention to any communications from their university's Office of Disability Services to understand additional supports students might need.

Learn the Basic Features of the Web Conferencing Application

Instructors are not tech support, but they should know the basics of any web conferencing applications they plan to use in class. While each web conferencing application differs in some ways, they all have some standard features that instructors should know how to use. For instance, instructors should know how to set up a meeting, invite students to the meeting, remove a student from a meeting, and record a meeting; they should also know how to turn their webcam on and off, mute themselves and others, chat, screen share, and enable live captions, to name a few (see Bower, 2011; Zoom, n.d.). As they become more familiar and comfortable with the web conferencing application, they should learn how to use polls, whiteboards, and breakout rooms.

There are even certain features, for instance with Zoom, that need to be enabled online (e.g., on www.zoom.us) and not in the actual application. Instructors should also understand any limitations (e.g., the number of participants allowed in each synchronous meeting) and some common troubleshooting tips to address common issues they might confront (e.g., if the audio gets choppy, people could turn their webcams off). They should also have a general backup plan in the event of major or minor technical issues (e.g., internet availability, Zoom updates, etc.)

Create or Identify Instructional Materials

Last but not least, before a semester begins, instructors should strive to identify or create any instructional materials they plan to use during their synchronous meetings throughout a given semester. By doing so, instructors will not only be prepared for each meeting, but they will be able to share any materials with students before a given synchronous meeting and/or upload any files to the web conferencing application to save time (and possibly avoid problems) and/or test the use of any multimedia or special applications they plan to use ahead of time.

Before Each Live Synchronous Meeting

There are also certain things an instructor should consider doing before each live synchronous meeting they hold. The following are a few examples of such things.

Create Agendas for Each Meeting

As is the case for all meetings, agendas can help instructors stay on task during synchronous meetings (Bezboruah, 2019). Agendas also help students prepare for synchronous meetings (Wicks, 2021). For instance, an agenda can remind students that they should have completed certain readings or other assignments before the meeting. Agendas can also remind students about important due dates or upcoming events (see Robertson et al., 2021). Kim (2011) even recommends posting an agenda the day before a synchronous meeting. Agendas are

especially helpful when offering optional synchronous meetings; agendas can help students decide whether they should plan to attend or not, or if they may need any additional support or resources.

Assign Meeting Roles

Plan roles for students and any teaching assistants (TAs) ahead of time (Dunlap, 2009; Yoon & Semingson, 2019). Applications like Zoom allow instructors to add co-hosts, which will allow TAs or designated students to assist with the technology throughout the class. For example, if the instructor loses internet connection or has other technical issues that kick them out of the synchronous meeting, applications like Zoom will automatically assign the co-host as the new meeting host, and the meeting can continue, rather than Zoom ending the meeting for all participants. Further, having a co-host can help by having someone follow the chat and remind the instructor or presenter of any questions that might be posted in the chat.

Setup Polls, Breakout Rooms, and Activities (when needed)

Features like polls and breakout rooms can be great pedagogical tools for formative assessments or small group discussions (Wick, 2021; Yoon & Semingson, 2019). These features can often be created before as well as during a synchronous meeting. However, they often are easier to create and use seamlessly when created before a synchronous meeting begins. Instructors should have a basic understanding of how to start, stop, and share poll questions as well as poll results during a synchronous meeting, especially if the results of the poll are meant to be anonymous. Sometimes beginning with a fun and low stakes poll or social check-in, such as “What did you eat for dinner last night?,” can help instructors gain some basic experience of how polls work.

When instructors create breakout rooms so that students can collaborate in small groups, they need to decide whether each student or participant should be assigned to a specific room manually, whether participants should be assigned to breakout rooms based on group size, or whether participants should be able to choose what breakout room to join. Regardless of the option, instructors should inform participants how they will be put in breakout rooms and what to do after the breakout room to help limit any possible confusion.

Other activities used during synchronous meetings (e.g., icebreakers, PowerPoint presentations, trivia games, etc.) also should be planned ahead of time whenever possible. This will allow instructors to work out any technical issues as well as the time needed for each activity.

During the Live Synchronous Meeting

Instructors should consider doing several things during their live synchronous meetings. In the following section, we briefly describe some common strategies instructors should use regardless of what they plan to do during the synchronous meeting, and we follow up with a number of instructional strategies instructors might use.

Regardless of the instructional strategies used, an instructor should always consider doing the following for each synchronous meeting:

Moderate Admission to Meeting

During COVID-19, we found an increased occurrence of what has been described as Zoom bombing (Lowenthal, 2020; Setera, 2020). This is when people who are not meant to be in a synchronous meeting show up and often disrupt the meeting (e.g., by sharing pornography or profanity). Instructors can limit or prevent things like this by adding a passcode that is given only to invited participants, enabling a waiting room (which is currently an option in Zoom), and/or

enabling participant authentication (e.g., requiring students to login with their university account). Enabling the waiting room, which can be done in the meeting or beforehand, allows students to be admitted one at a time or as an entire group once their names are recognized. In addition to improving security, this is also a useful function if instructors need to connect with TAs, co-hosts, guest speakers, etc. before officially starting a synchronous meeting. Zoom, in particular, even enables instructors to post messages to those waiting to be admitted to the meeting (e.g., “Thanks for joining our advising training today! The meeting will begin shortly. Go Cougs!”)

Enable Closed Captions

Instructors need to think about accessibility when teaching online in any format (Lomellini & Lowenthal, 2022; Lowenthal et al., 2020). Most web conferencing applications offer the ability to have someone live caption, add closed captions, or have some type of live transcript (Graves & Khalid, 2021). For instance, Zoom has a live transcription feature that will create a live auto transcript and Google Meet has the ability for individuals to turn on captions for themselves. It is important to keep in mind that sometimes these features might need to be enabled by the host or even an administrator. However, if a student requests accommodations, instructors usually will need to work with their university to get professional support (e.g., through their disability or educational access centers) by a third-party service. Either way, instructors should keep in mind that research has shown that closed captions can benefit all students (Linder, 2016).

Record the Meeting

The ability to record meetings is a helpful feature of most web conferencing applications. This enables participants unable to attend a synchronous meeting to watch the recording at a later

date (Wick, 2021). It is important to note, though, that simply because one can record every synchronous meeting does not mean that one should. For instance, there are some synchronous meetings (e.g., one-on-one office hours or discussions of emotional or personal topics) that likely should not be recorded. We have also heard some instructors suggest that a drawback of recording meetings is that it can discourage attendance and participation. However, despite sentiments like this, we expect to see an increased interest and even expectation from students for greater flexibility in how they attend and complete their coursework post-COVID-19, and we contend that the ability to record meetings and watch them later will play an important role in enabling this flexibility.

When an instructor does decide to record a meeting, they need to think about how they will securely distribute the recording to their attendees in a way that is compliant with FERPA. It is also important to let students know at the start of each meeting when a synchronous meeting will be recorded; among other things, they might prefer to change their screen name or keep their webcam off when a meeting is being recorded. Zoom in particular has a built-in feature that will post a notification to participants to get their consent for recording.

Establish Discussion/Participation Protocols

As discussed in the previous section of this paper, establishing expectations for students taking blended, remote, or online courses with synchronous meetings is essential. In addition to listing these in the course syllabus and/or agenda, instructors should also remind students of the participation protocols at the beginning of a synchronous meeting. Protocols might identify things such as the following:

- Who will field and/or answer questions in the chat?

- Should attendees use a “Raise Hand” function to ask questions or simply “unmute” themselves when they want to talk or ask a question?
- Should webcams be on or off by default?

These options can change for each meeting, especially depending on what instructional strategies are used (discussed in more detail below.) Thus, it is important to review the expectations during each meeting. Finally, participation in breakout rooms (also discussed in the next section) should have a set of expectations and protocols identified ahead of time by the instructor (e.g., there might be a timekeeper, a notetaker, etc.). See Dunlap (2009c) and Moore and Marra (2005) for some tips on how discussion protocols might be used in asynchronous and synchronous online discussions.

Instructional Strategies for Live Synchronous Meetings

Below are different instructional strategies that instructors can use in synchronous meetings. Note that many of these strategies can also be used for in-person and asynchronous courses, but the ability to do them in real time, with video, from a distance can be appealing to instructors who teach remote, blended, and online courses.

Course Orientation

Research has highlighted the importance of orienting students to their courses (Dunlap & Lowenthal, 2014). Course orientations can help students get to know their instructor and fellow students, as well the general focus of the course. While these can be done in person (when appropriate) or asynchronously, there are some advantages to bringing students together early in the course for a course orientation or kick-off meeting as it can help improve social presence, which, in turn, can help create a sense of classroom community throughout the semester (Martin & Parker, 2014).

Office Hours

Instructors are expected to have office hours for the courses they teach. Online educators often offer office hours asynchronously or by appointment only. However, instructors could offer synchronous meetings on a regular basis (e.g., every other week) where students could meet them either individually or with other students in real time (Lowenthal et al., 2017). Benefits of offering office hours in this format include the ability to get questions answered efficiently in real time as well as the ability to show things through screen sharing as needed.

Online Lectures

Lecturing is one of the oldest and possibly most used instructional strategies (Friesen, 2011). Instructors can hold synchronous meetings to deliver lectures and then record the lectures to be viewed by other students who missed the class session at a later date (Belt & Lowenthal, under review). While research on cognitive overload as well as distraction might suggest that offering long lectures in a format like this might not be ideal (Afify, 2020), many agree that there is value in offering mini-lectures to spark classroom discussions either as a whole class or in follow-up breakout rooms (See Chen & Wu, 2015).

Guest Speakers

Students can benefit from guest speakers who can, among other things, offer different and diverse perspectives to a class, especially when they have industry knowledge and experience that they can share with students (Fulton, 2020). Synchronous meetings enable instructors to bring guest speakers from all over the world to their courses (Li & Guo, 2015). This could even include the author of the textbook used in the course. Instructors can record these presentations for future semesters.

Show and Tell and/or Peer Review

Certain fields of study or types of classes have a long history of having students present and share their work for critique and/or peer review (e.g., in a writing or poetry class or a design or art class; Barber, 2011). While peer review can be done in an asynchronous format, and at times is more successful when people have time to review and reflect on a project, there are times when peer review should be done in real time and can benefit from the visual capabilities and immediacy of synchronous meetings (Conrad, 2021; Hokanson, 2012, 2020)

Individual or Group Student Presentations

Effective communication is an important student outcome for most if not all colleges and universities. In fact, it is listed in nearly all 21st-century learning frameworks (Dede, 2010). While there are benefits of students creating, recording, and editing presentations for others to watch asynchronously, some instructors like to hold synchronous meetings (e.g., during the last week of class) so that students can give individual or group presentations and field questions from others in real time (Arnold, 2019; Ortactepe, 2016).

Guest Evaluators

Students can benefit from interacting with established experts from their field of study. In addition to simply serving as a guest speaker, experts from the field can attend synchronous meetings to evaluate and provide feedback on student work and/or presentations in the same way that they might in a design crit (see Bonk & Zhang, 2008; Wolford et al., 2021). For instance, students (individually or in groups) could pitch ideas for a new company to a group of three guest evaluators; the evaluators could provide feedback and ultimately select which one they would hypothetically fund and why. Variations of this process have been used with national awards like the three-minute thesis.

Additional Support, Tutoring, and/or Test Preparation

Since many students are too nervous to attend office hours or do not see the value in doing so, review sessions can be a great way to connect with students who may need additional support. One way this is done at the institutional level is by offering virtual peer tutoring (Smith, 2018). An instructor at Boise State University offers opportunities like these before the midterm and final exams; among other things, he has students illustrate how to solve the problems and answer other student questions during these synchronous meetings (see Pakala et al., 2019).

Debates

Instructors can hold synchronous meetings where students engage in a real-time debate on a predetermined topic (Cheese, 2015; DeClerk et al., 2020). For instance, students could be split into different groups where they must argue either for or against something. In their groups, they could research their topic and develop their argument ahead of time but then engage in a lively debate in real time.

Collaborative Group Work

One of the many benefits of synchronous meetings is that they not only enable students to listen to an instructor lecture or discuss with their peers, but also provide a space and time for students to collaborate (Belt & Lowenthal, 2021). For instance, students could come together and work in real time to co-author a paper, co-create a presentation, or co-read and annotate a paper, whether as an entire class or in smaller groups as well as with or without their instructor.

Group Check-ins

Group work can be challenging, especially when done online (Roberts & McInnerney, 2007). Synchronous meetings can be an effective way to get group members on the same page as a way to kick off a project. These meetings can also be a great way to check in during the

semester, whether with the instructor or not, to make sure that everything is going as planned with a group (Dunlap, 2009b). This can be an effective way for instructors to check in on how different groups are working together.

Assessments and Feedback

Synchronous meetings can be an effective way to assess student learning and/or provide students feedback (whether at an individual or group level; Bonk & Zhang, 2008). For instance, in communication or language courses, instructors can meet one-on-one with students, in small groups, or even as an entire class to provide opportunities in real time for students to demonstrate what they have learned. Instructors could also use synchronous meetings to go over student work and provide feedback to a class in real time while showing the work as they provide feedback (see Lowenthal et al., 2021).

Student/Alumni/Guest Panels

In addition to having guest presenters or guest evaluators, instructors could also invite students who are further along in the program, alumni, or other guests to attend synchronous meetings for a question-and-answer panel discussion where current students could ask questions of panels of guests about their prior experiences (e.g., completing a capstone project, finding a job, etc.).

After Each Live Synchronous Meeting

After each synchronous meeting, instructors can do several things to not only help improve student learning but also encourage future participation in and overall effectiveness of synchronous meetings. We briefly address a few of these below.

Ending the Meeting

Instructors or meeting facilitators should strive to be the last to leave a virtual meeting. This allows for students or other participants to stick around and ask individual questions or receive clarification. This process is very similar to students staying behind after class to speak with an instructor about attendance, grades, etc. This is not meant to replace office hours, as discussed previously, but does give students an additional chance to connect with their instructor. Once everyone else has left the meeting, or if there are no other questions, an instructor can simply select “leave meeting.” Instructors should plan for opportunities like this when scheduling back-to-back meetings.

Provide and Encourage Technology Feedback

Applications like Zoom seek feedback from participants (e.g., “How was your meeting?”) after each meeting ends. This helps provide feedback to software developers. As we find ourselves using applications like these more each day, it is important to provide feedback to software developers and encourage students to do the same. Additionally, if technology issues prevented the meeting from taking place or cut the time short, instructors should follow up with all participants about the next steps and potential troubleshooting tips for the future.

Download the Participants List and Chat Log

To quickly take online attendance, instructors can often download the participant list from the web conferencing software either during or after the meeting. If an institution, school, or program requires specific login information, be sure to share those specifics with students ahead of time.

Share Recording

If the synchronous meeting is recorded, the recording will be available to download shortly after the meeting. For instance, if instructors use Zoom, they will receive an email notifying them that the recording is ready; instructors can then either download whichever version (video or audio) they want to share with their students and leverage their university-supported video platform and LMS integration to share videos. Because of the size of video files and for FERPA compliance, the best way to share a recording with students is to share the video through a secure video platform that is supported by the university (e.g., Kaltura, Panopto, etc.), and only provide students enrolled in that class access to the video. The platform instructors use must, at a minimum, create auto-captions from the recording and allow the video to be shared in a manner that is compliant with FERPA (e.g., use Kaltura's Canvas integration to share lecture videos only with students enrolled in the course).

At Boise State University, our Zoom recordings are transferred to Panopto, which uses Otter.ai to automatically caption videos at an industry high standard. We recommend that instructors take the time to review and correct the auto-generated captions. If for some reason an instructor is unable to use a video streaming service that captions videos, they could use apps like Otter.ai to create an initial transcript to include with the video. See Greear and Lowenthal (2016) for more on creating accessible video.

Update/Cancel Future Meetings and Agendas

Similar to in-person or asynchronous meetings, it is important to evaluate the material covered during a synchronous meeting and adjust future meetings and agendas accordingly. It is best to do this immediately after the meeting, especially for anyone new to online synchronous teaching.

Send Anonymous Feedback Surveys

After inviting a guest speaker to a synchronous meeting, or even regularly throughout a course, it is always a good idea to provide students the opportunity to give anonymous feedback about the instructional design or content of the class (Storms, 2021). This could be done using a tool like Google Forms. Participants can also use the poll functionality discussed earlier to provide feedback at the end of a meeting or at the beginning of the next meeting. Make sure to set up the polling correctly to ensure participants' responses are anonymous. For example, Zoom meeting hosts can set up polls that allow participants to answer questions anonymously.

Limitations

Although we briefly addressed some possible issues with synchronous meetings, such as FERPA compliance and accessibility, we did not discuss these requirements and guidelines in depth. We recommend that instructors consult with experts in these areas at their institutions to ensure these critical areas are addressed properly according to the institution's policies.

Conclusion

The COVID-19 pandemic forced college instructors to move their courses into blended, remote, or online formats. As a result, many instructors turned to web conferencing software, like Zoom, to continue offering their courses from a distance through the use of live synchronous meetings. Live synchronous meetings have some inherent advantages; for instance, instructors and students can interact and communicate with each other in real time from a distance, while being able to see and hear each other and share their computer screens. However, synchronous meetings are not a panacea. Rather, their effectiveness largely depends on why and how they are used. Given this, the purpose of this paper was to briefly describe the affordances and constraints of synchronous communication and then to identify some evidence-based best practices

instructors can use in their live synchronous meetings. Successful synchronous meetings require careful planning, facilitation, and evaluation. Working from the literature and our combined experience teaching online, we identified things instructors should do before a semester starts, before each synchronous meeting starts, during the synchronous meeting, and finally after each synchronous meeting. Among other things, it is important for instructors to think about ways to move away from simply lecturing and instead consider how they can use a host of strategies such as office hours, guest speakers, peer reviews, assessments, and panels during their synchronous meetings. By implementing strategies like these (or others listed in additional reading in the appendix), as well as being aware of the constraints of online synchronous teaching, we contend that both learners and instructors can better engage with the course content as well as one another.

References

- Abney, J., & Conatser, T. (2020, October). How to make your virtual discussions engaging, effective, and equitable in eight steps. *Faculty Focus*. Magna Publications.
<https://www.facultyfocus.com/articles/online-education/online-student-engagement/how-to-make-your-virtual-discussions-engaging-effective-and-equitable-in-eight-steps/>
- Afify, M. K. (2020). Effect of interactive video length within e-learning environments on cognitive load, cognitive achievement and retention of learning. *Turkish Online Journal of Distance Education*, 21(4), 68-89. <http://dx.doi.org/10.17718/tojde.803360>
- Allen, I. E., & Seaman, J. (2017). Digital compass learning: Distance education enrollment report 2017. Babson survey research group.
- Arnold, S. (2019). Student e-presentations in remote learning environments. In S. Carliner (Ed.), *Proceedings of E-Learn: World conference on e-learning in corporate, government, healthcare, and higher education* (pp. 1-7). Association for the Advancement of Computing in Education (AACE).
- Bali, M., & Meier, B. (2014, March 4). An affinity for asynchronous learning. *Hybrid Pedagogy*.
<https://hybridpedagogy.org/affinity-asynchronous-learning/>
- Barber, T. C. (2011). The online crit: The Community of Inquiry meets design education. *Journal of Distance Education*, 25(1), 1-16.
- Belt, E., & Lowenthal, P. R. (under review). Synchronous video-based communication technologies and online learning: An exploration of instructors perceptions, experiences, and expectations.

- Belt, E., & Lowenthal, P. R. (2021). Video use in online and blended courses: A qualitative synthesis. *Distance Education*, 42(3), 410-440.
<https://doi.org/10.1080/01587919.2021.1954882>
- Bezboruah, K. C. (2019). Live sessions and accelerated online project-based courses. In J. Yoon & P. Semingson (Eds.), *Educational technology and resources for synchronous learning in higher education* (pp. 23-55). IGI. <http://dx.doi.org/10.4018/978-1-5225-7567-2.ch002>
- Bonk, C. J., & Zhang, K. (2008). *Empowering online learning: 100+ activities for reading, reflecting, displaying, and doing*. John Wiley & Sons.
- Bower, M. (2011). Synchronous collaboration competencies in web-conferencing environments—their impact on the learning process. *Distance Education*, 32(1), 63-83.
<http://dx.doi.org/10.1080/01587919.2011.565502>
- Cheese, F. (2015). Use online debates to enhance classroom engagement. In B. Chen & K. Thompson (Eds.), *Teaching online pedagogical repository*. University of Central Florida Center for Distributed Learning. <https://topr.online.ucf.edu/use-online-debates-to-enhance-classroom-engagement/>
- Chen, C. M., & Wu, C. H. (2015). Effects of different video lecture types on sustained attention, emotion, cognitive load, and learning performance. *Computers & Education*, 80, 108-121. <http://dx.doi.org/10.1016/j.compedu.2014.08.015>
- Clark, R. E. (1994). Media will never influence learning. *Educational Technology, Research and Development*, 42(2), 21-20. <http://dx.doi.org/10.1007/BF02299088>
- Conrad, M.O. (2021). Online design critiques encourage student interaction in the virtual classroom. *Biomed Eng Education*, 1, 159-163. <https://doi.org/10.1007/s43683-020-00028-7>

- Day, J., & Verbiest, C. (2021). Lights, camera, action? A reflection of utilizing web cameras during synchronous learning in teacher education. *The Teacher Educators' Journal*, 14, 3-21.
- DeClerk, L., LaBorde, P., & Smith-Olinde, L. (2020). Debate as a learning tool in an online environment. *Journal of the American Association of Nurse Practitioners*, 32(6), 461-468. <http://dx.doi.org/10.1097/JXX.0000000000000265>
- deNoyelles, A. (2015). Set discussion expectations. In B. Chen & K. Thompson (Eds.), *Teaching online pedagogical repository*. University of Central Florida Center for Distributed Learning. <https://topr.online.ucf.edu/setting-discussion-expectations/>
- Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51-76). Solution Tree Press.
- Dunlap, J. C. (2009a). Down-and-dirty guidelines for effective discussions in online courses. In P. R. Lowenthal, D. Thomas, A. Thai, & B. Yuhnke, B. (Eds.), *The CU Online handbook. Teach differently: Create and collaborate* (pp. 93-99). Lulu.
- Dunlap, J. C. (2009b). Improving the odds of effective collaborative work in online courses. In P. R. Lowenthal, D. Thomas, A. Thai, & B. Yuhnke, B. (Eds.), *The CU Online handbook. Teach differently: Create and collaborate* (pp. 93-99). Lulu.
- Dunlap, J. C. (2009c). Protocols for online discussions. In P. R. Lowenthal, D. Thomas, A. Thai, & B. Yuhnke, B. (Eds.), *The CU Online handbook. Teach differently: Create and collaborate* (pp. 93-99). Lulu.

- Dunlap, J.C., & Lowenthal, P. R. (2014). The power of presence: Our quest for the right mix of social presence in online courses. In A. A. Piña & A. P. Mizell (Eds.), *Real life distance education: Case studies in practice* (pp. 41-66). Information Age Publishing.
- Fadde, P. J., & Vu, P. (2014). Blended online learning: Benefits, challenges, and misconceptions. In P. R. Lowenthal, C. S. York, & J. C. Richardson (Eds.), *Online learning: Common misconceptions, benefits, and challenges* (pp. 38-48). Nova Publishers.
- Friesen, N. (2011). The lecture as a transmedial pedagogical form: A historical analysis. *Educational Researcher*, 40(3), 95-102. <http://dx.doi.org/10.3102/0013189X11404603>
- Fulton, C. (2020). Collaborating in online teaching: inviting e-guests to facilitate learning in the digital environment. *Information and Learning Sciences*, 121(7/8), 579-585. <http://dx.doi.org/10.1108/ILS-04-2020-0116>
- Gao, F., Zhang, T., & Franklin, T. (2013). Designing asynchronous online discussion environments: Recent progress and possible future directions. *British Journal of Educational Technology*, 44(3), 469-483. <http://dx.doi.org/10.1111/j.1467-8535.2012.01330.x>
- Graves, S., & Khalid, Z. (2021, April). *Accessible interactions: Tips for synchronous online learning*. GC Online. <https://gconline.commons.gc.cuny.edu/2021/04/09/accessible-interactions-tips-for-synchronous-online-learning/>
- Gunawardena, C. N. & Zittle, F.J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education*, 11(3), 8-26. <http://dx.doi.org/10.1080/08923649709526970>

Hokanson B. (2012) The design critique as a model for distributed learning. In L. Moller & J. Huett (Eds.), *The next generation of distance education* (pp. 71-83). Springer.

https://doi.org/10.1007/978-1-4614-1785-9_5

Hokanson, B. (2020). Design Critique. In J. K. McDonald & R. E. West, *Design for learning: Principles, processes, and praxis*. EdTech Books.

https://edtechbooks.org/id/design_critiq

Hrastinski, S. (2008). The potential of synchronous communication to enhance participation in online discussions: A case study of two e-learning courses. *Information & Management*, 45(7), 499-506. <http://dx.doi.org/10.1016/j.im.2008.07.005>

Kim, J. (2011, July). 10 Guidelines for Running Synchronous Web Teaching Sessions. *Inside HigherEd*. <https://www.insidehighered.com/blogs/technology-and-learning/>

[10-guidelines-running-synchronous-web-teaching-sessions](https://www.insidehighered.com/blogs/technology-and-learning/10-guidelines-running-synchronous-web-teaching-sessions)

Kozma, R. B. (1994). Will media influence learning? Reframing the debate. *Educational Technology, Research and Development*, 42(2), 7-19.

<http://dx.doi.org/10.1007/BF02299087>

Lederman, D. (2018, November). Online education ascends. *Inside Higher Ed*. <https://www.insidehighered.com/digital-learning/article/2018/11/07/new-data-online-enrollments-growand-share-overall-enrollment>

[growand-share-overall-enrollment](https://www.insidehighered.com/digital-learning/article/2018/11/07/new-data-online-enrollments-growand-share-overall-enrollment)

Lederman, D. (2020a, March). The shift to remote learning: The human element. *Inside HigherEd*. [https://www.insidehighered.com/digital-learning/article/2020/03/25/](https://www.insidehighered.com/digital-learning/article/2020/03/25/how-shift-remote-learning-might-affect-students-instructors-and)

[how-shift-remote-learning-might-affect-students-instructors-and](https://www.insidehighered.com/digital-learning/article/2020/03/25/how-shift-remote-learning-might-affect-students-instructors-and)

Lederman, D. (2020b, March). Will shift to remote teaching be boon or bane for online learning?

Insider HigherEd. <https://www.insidehighered.com/digital-learning/article/2020/03/18/most-teaching-going-remote-will-help-or-hurt-online-learning>

Li, L., & Guo, R. (2015). A student-centered guest lecturing: A constructivism approach to promote student engagement. *Journal of Instructional Pedagogies*, 15.

<http://www.aabri.com/manuscripts/142045.pdf>

Linder, K. (2016). *Student uses and perceptions of closed captions and transcripts: Results from a national study*. 3PlayMedia & Oregon State University.

<https://go.3playmedia.com/hubfs/WP%20PDFs/Student-Survey-Report-10-25-16-Final.pdf>

Liu, J. C., & Alexander, R. (2017). Factors affecting faculty use of video conferencing in teaching: A mixed-method study. *Journal of Educational Technology Development and Exchange*, 10(2), 37-54. <http://dx.doi.org/10.18785/jetde.1002.03>

Lomellini, A., & Lowenthal, P. R. (2022). Inclusive online courses: Universal Design for Learning strategies for faculty buy-in. In Stefaniak, J. E., & Reese, R. M. (Eds.), *The instructional designer's training guide: Authentic practices and constructive mentoring for ID and ed tech professionals* (pp. 101-111). Routledge.

Lowenthal, P. R. (2009). The evolution and influence of social presence theory on online learning. In T. T. Kidd (Ed.), *Online education and adult learning: New frontiers for teaching practices* (pp. 124-139). IGI Global.

Lowenthal, P., Borup, J., West, R., & Archambault, L. (2020). Thinking beyond Zoom: Using asynchronous video to maintain connection and engagement during the COVID-19 pandemic. *Journal of Technology and Teacher Education*, 28(2), 383-391.

- Lowenthal, P. R., Dunlap, J. C., & Snelson, C. (2017). Live synchronous web meetings in asynchronous online courses: Reconceptualizing virtual office hours. *Online Learning*, 21(4), <http://dx.doi.org/10.24059/olj.v21i4.1285>
- Lowenthal, P. R., Greear, K., Humphrey, M., Lowenthal, D. A., Conley, Q., Giacumo, L. A., & Dunlap, J. C., (2020). Creating accessible and inclusive online learning: Moving beyond compliance and broadening the discussion. *Quarterly Review of Distance Education*, 21(2), 1-21.
- Lowenthal, P. R., & Mulder, D. (2017). Social presence and communication technologies: Tales of trial and error. In A. Whiteside, A. Garrett Dikkers, & K. Swan, (Eds.), *Social presence in online learning: Multiple perspectives on practice and research* (pp. 32-44). Stylus.
- Lowenthal, P. R., West, R. E., Archambault, L., Borup, J., & Belt, E. (2021). Faculty perceptions of using synchronous video-based communication technology. *Online Learning Journal*, 25(4), 74-103. <http://dx.doi.org/10.24059/olj.v25i4.2890>
- Lowenthal, P. R., Wilson, B., & Parrish, P. (2009). Context matters: A description and typology of the online learning landscape. In *32nd Annual proceedings: Selected research and development papers presented at the annual convention of the Association for Educational Communications and Technology*. Association for Educational Communications and Technology.
- Martin, F., & Parker, M. A. (2014). Use of synchronous virtual classrooms: Why, who, and how. *Journal of Online Learning and Teaching*, 10(2), 192-210.

- Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). e-Learning, online learning, and distance learning environments: Are they the same? *Internet and Higher Education, 14*(2), 129-135. <http://dx.doi.org/10.1016/j.iheduc.2010.10.001>
- Moore, J. L., & Marra, R. M. (2005). A comparative analysis of online discussion participation protocols. *Journal of Research on Technology in Education, 38*(2), 191-212. <http://dx.doi.org/10.1080/15391523.2005.10782456>
- Moore, M. G. (2007). The theory of transactional distance. In M. G. Moore (Ed.), *The handbook of distance education* (2nd ed.; pp. 89-105). Lawrence Erlbaum.
- Murphy, E., & Coleman, E. (2004). Graduate students' experiences of challenges in online asynchronous discussions. *Canadian Journal of Learning and Technology, 30*(2). <https://doi.org/10.21432/T27G7N>
- Ortaçtepe, D. (2016). Using webcasts for student presentations: a case study. *The International Journal of Information and Learning Technology, 33*(1), 57-74. <https://doi.org/10.1108/IJILT-10-2015-0029>
- Oztok, M., Zingaro, D., Brett, C., & Hewitt, J. (2013). Exploring asynchronous and synchronous tool use in online courses. *Computers & Education, 60*(1), 87-94. <http://dx.doi.org/10.1016/j.compedu.2012.08.007>
- Pakala, K., Bairaktarova, D., & Schauer, S. (2019, June). Happy Hours are a godsend. Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. <https://doi.org/10.18260/1-2--32885>
- Park, Y. J., & Bonk, C. J. (2007). Synchronous learning experiences: Distance and residential learners' perspectives in a blended graduate course. *Journal of Interactive Online Learning, 6*(3), 245-264.

- Parker, M., & Martin, F. (2010). Using virtual classrooms: Student perceptions of features and characteristics in an online and a blended course. *Journal of Online Learning and Teaching*, 6(1), 135–147.
- Peterson, A. T., Beymer, P. N., & Putnam, R. T. (2018). Synchronous and asynchronous discussions: Effects on cooperation, belonging, and affect. *Online Learning*, 22(4), 7-25. <http://dx.doi.org/10.24059/olj.v22i4.1517>
- Ragan, L. C. (1999). Good teaching is good teaching: An emerging set of guiding principles and practices for the design and development of distance education. *Cause Effect*, 22, 20-24.
- Roberts, T. S., & McInnerney, J. M. (2007). Seven problems of online group learning (and their solutions). *Educational Technology & Society*, 10(4), 257-268.
- Robertson, B., McDermott, C., Star, J., Lewin, L. O., & Spell, N. (2021). Synchronous virtual interprofessional education focused on discharge planning. *Journal of Interprofessional Education & Practice*, 22, 100388. <http://dx.doi.org/10.1016/j.xjep.2020.100388>
- Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education*, 14(2), 50-71.
- Schaberg, C. (2020, September). Why I'm teaching online. *Insider HigherEd*. <https://www.insidehighered.com/views/2020/09/11/professor-who-asserted-hed-never-teach-online-explains-why-he's-opting-do-so-now>
- Seifert, T. (2019). Improving involvement through interaction in synchronous teaching/learning in higher education. In *Educational technology and resources for synchronous learning in higher education* (pp. 229-254). IGI Global.

- Setera, K. (2020, March). FBI warns of teleconferencing and online classroom hijacking during COVID-19 Pandemic. FBI. <https://www.fbi.gov/contact-us/field-offices/boston/news/press-releases/fbi-warns-of-teleconferencing-and-online-classroom-hijacking-during-covid-19-pandemic>
- Simon, E. (2018, November). 10 tips for effective online discussions. *EDUCAUSE Review*. <https://er.educause.edu/blogs/2018/11/10-tips-for-effective-online-discussions>
- Smith, C. D. (2018). *Synchronous online peer tutoring via video conferencing technology: An exploratory case study*. [Doctoral dissertation, Boise State University]. Boise State University Theses and Dissertations. <https://doi.org/10.18122/td/1454/boisestate>
- Snyder, T., & Garner, B. (2020, November). Engaging faculty to connect with online learners in real time. *EDUCAUSE Review*. <https://er.educause.edu/blogs/2020/11/engaging-faculty-to-connect-with-online-learners-in-real-time>
- Storm, G. (2021, February). Crush your next virtual class: 6 tips to keep students engaged on Zoom. Harvard Business Publishing. <https://hbsp.harvard.edu/inspiring-minds/keep-students-engaged-on-zoom?>
- Themelis, C. (2014). Synchronous video communication for distance education: the educators' perspective. *Open Praxis*, 6(3), 245-256. <http://dx.doi.org/10.5944/openpraxis.6.3.128>
- Turner, P. (2022, March). Revisiting camera use in live remote teaching: Considerations for learning and equity. *EDUCAUSE Review*. <https://er.educause.edu/articles/2022/3/revisiting-camera-use-in-live-remote-teaching-considerations-for-learning-and-equity>
- University of Melbourne. (2021, July). Preparing and familiarising my students with Zoom. <https://le.unimelb.edu.au/learning-teaching-assessment/activities-and-tutorials/how-do-i-deliver-my-tutorials-online/how-do-i-prepare-and-familiarise-my-students-with-zoom>

West, R., & Borup, J. (2021, February). The power of asynchronous video. *EDUCAUSE Review*.

<https://er.educause.edu/blogs/2021/2/the-power-of-asynchronous-video>

Wicks, D. A. (2021). Minimizing zoom fatigue and other strategies for a successful synchronous class experience. In H. Han, J. H. Williams, S. Cui (Eds.), *Tackling online education: Implications of responses to COVID-19 in higher education globally* (pp. 2-24). Cambridge Scholars.

Wolford, C., Zhaho, Y., Kashyap, S., & Gray, C. M. (2021). Critique assemblages in response to emergency hybrid studio pedagogy. Paper presented at the 6th International Conference for Design Education Researchers. Jinana, China.

Yoon, J., & Semingson, P. (Eds.). (2019). *Educational technology and resources for synchronous learning in higher education*. IGI.

Zoom. (n.d.). An educator's guide to using Zoom in the classroom. Retrieved from

<https://explore.zoom.us/docs/en-us/educator-guide.html>

Zoom. (2020, April). Tips and tricks for teachers educating on Zoom. <https://explore.zoom.us/docs/doc/Tips%20and%20Tricks%20for%20Teachers%20Educating%20on%20Zoom.pdf>

Appendix

Additional Reading and Resources

Interactive Synchronous Sessions

https://www.purdue.edu/innovativelearning/supporting-instruction/portal/files/25_Interactive_Synchronous_Sessions_in_Online_Courses.pdf

This resource includes descriptions of interactive synchronous sessions, why they are important, and how to implement them.

6 Models for Blended Synchronous and Asynchronous Online Course Delivery Authors

<https://er.educause.edu/blogs/2020/8/6-models-for-blended-synchronous-and-asynchronous-online-course-delivery>

This resource includes explanations and implementation strategies for 6 different models of online learning, as well as important considerations for instructors using the models.

Stanford researchers identify four causes for ‘Zoom fatigue’ and their simple fixes

<https://news.stanford.edu/press-releases/2021/02/23/four-causes-zoom-fatigue-solutions/>

This resource includes explanations of possible causes of online learning fatigue and how to mitigate the effects. It also includes resources to measure online fatigue using the Zoom Exhaustion Fatigue (ZEF) scale.

How Do You Make Zoom Breakout Rooms Less Boring?

<https://www.edsurge.com/news/2020-09-24-how-do-you-make-zoom-breakout-rooms-less-boring>

This resource includes examples of strategies that instructors can implement during synchronous online courses to engage learners in ways other than lecture.

Using Structure to Promote Equity and Engagement in Live Remote Sessions

<https://er.educause.edu/articles/2021/5/using-structure-to-promote-equity-and-engagement-in-live-remote-sessions>

This resource includes strategies and examples for synchronous online learning that are inclusive and equitable through course structure.

Synchronous Online Classes: 10 Tips for Engaging Students

<https://www.facultyfocus.com/articles/online-education/online-student-engagement/synchronous-online-classes-10-tips-engaging-students/>

This resource includes ten concrete examples of ways that instructors can engage students in synchronous online learning environments.