

# **Bichronous Online Learning: Perspectives, Best Practices, Benefits, and Challenges from Award-Winning Online Instructors**

Florence Martin  
North Carolina State University, *USA*

Swapna Kumar  
University of Florida, *USA*

Albert Ritzhaupt  
University of Florida, *USA*

Drew Polly  
University of North Carolina Charlotte, *USA*

## **Abstract**

Bichronous online learning is the intentional blending of asynchronous and synchronous online learning experiences. Twelve award-winning online instructors participated in interviews to discuss best practices they use, and benefits and challenges in bichronous online courses. When sharing best practices for bichronous online courses, online instructors explained how they combined best practices in asynchronous and synchronous online learning. Asynchronous online best practices included course design and structure, resources, and instructor presence; and synchronous online best practices focused on formats, activities, and content of synchronous sessions, and community-building. The best practices, benefits and challenges discussed in this paper have implications for instructors who currently teach in a bichronous online format or may be considering it in the future, and for instructional designers and administrators who work with faculty on offering courses in this modality. Based on the data, the intentional blending of synchronous and asynchronous components has a lot of potential to enhance students' online learning experiences.

*Keywords:* Bichronous online learning, best practices, online instructor perspectives

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The National Center for Education Statistics (NCES) reported that approximately 71% of students enrolled in postsecondary education have enrolled in at least one distance education course (NCES, 2022). Today, distance education courses in institutions of higher education are most often delivered through online learning. The COVID-19 pandemic has further highlighted the importance and potential of online learning, leading to increased online course offerings both during and after the debut of the COVID-19 pandemic. Learners are also looking for educational options that fit their individual needs and preferences, including flexible scheduling, personalized learning experiences, and access to a wider range of courses and programs. Typically, online courses are delivered using different modalities including asynchronous and synchronous. Asynchronous online learning refers to anytime, anywhere learning, and synchronous online learning refers to anywhere, real-time learning. Rather than comparing the two modalities, Martin et al. (2020) coined the term, *bichronous online learning* to denote the intentional blending of asynchronous and synchronous online learning. The term *bichronous* refers to the two different time frames that are used in this mode of learning: synchronous activities that occur at the same time as other learners in the course, and asynchronous activities that can be completed at any time. This approach allows learners to have more control over their learning experience and to engage with course materials in a way that best suits their individual learning preferences and schedules.

**Conceptual Framework**

Bichronous online learning is becoming increasingly popular in online education because it allows for a flexible learning experience. It provides opportunities for learners to interact and collaborate with their peers and instructors, while still allowing them to work at their own pace and schedule. Research has individually described best practices for asynchronous and synchronous online learning, though there is limited discussion in the research on best practices for blending asynchronous and synchronous online learning.

**Figure 1**

*Conceptual Model for Bichronous Online Learning*

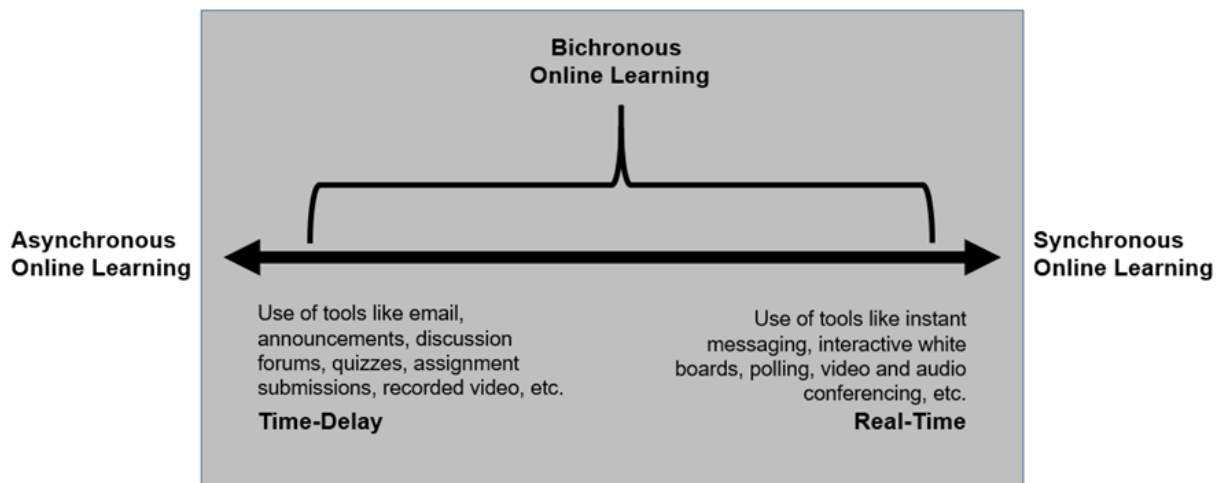


Figure originally published in Martin et al. (2020)

### ***Best Practices for Asynchronous Online Learning***

The research-based best practices on asynchronous online learning emphasize the importance of course design, course activities, assessment, and feedback. Research on asynchronous online learning cites the importance of well-designed courses where the course material is easy to find and the functionality of the course is easy to decipher (Czerkawski & Lyman, 2016; Shelton & Saltsman, 2011). Using specific instructional design models and frameworks has also been found to be critical to students' positive course experiences.

In terms of asynchronous online courses, research-based best practices focus on instructor presence. This typically is seen through interaction on discussion boards, responses to questions via learning management systems or e-mail and feedback on assignments (Oyarzun et al., 2017; Peterson, 2016). Specific to feedback, research indicates that learners' experience in a course is significantly influenced by the amount and type of feedback that they receive (Lumabi & Tabajen, 2021; Peterson, 2016). Feedback should be timely, specific and aligned to course objectives (Peterson, 2016). Additionally, feedback should give learners a clear understanding of actionable next steps for future assignments (Lumabi & Tabajen, 2021).

Effective designers and instructors of asynchronous online courses intentionally integrate assessment and the evaluation of learners into their course design process. In many cases assessment is driven by course goals, program goals, and requirements for accreditation (Guerrero-Roldán & Noguera, 2018). Assessment should be authentic and embedded in relevant course activities whenever possible instead of feeling like an additional assignment or burden (Conrad & Openo, 2018). Studies have indicated that designers and instructors of asynchronous courses use a variety of assessment strategies, including projects, portfolios, multimedia resources, discussion boards and research papers (Sun et al., 2008). Assessments and assignments should include clearly defined rubrics that explicitly tell the learners what the expectations are and how their work will be evaluated (Wang & Chen, 2017).

### ***Best Practices for Synchronous Online Learning***

In the case of synchronous components of online courses, the design of the course focuses on the design of learning experiences that occur during real-time online course meetings as well as course activities that happen before and after course meetings. Course activities should help to build community among learners which may include the use of the chat window, breakout rooms, or collaborative activities and discussions (Gillett-Swan, 2017; Kara, 2021). Learners have reported in multiple studies that they want to be able to socialize and interact with other learners during synchronous sessions (Richardson et al., 2017).

Additionally, since synchronous online sessions meet in real-time, the design of synchronous components should include activities that enhance what learners could do on their own time (Kara, 2021). In some cases, instructors have effectively designed courses where they provide learners with videos to view or content to read before the synchronous session so that the synchronous meeting can focus more on the application and discussion of content with which learners have previously interacted (Strelan et al., 2020). This approach increases the social interaction of learners, and also allows the course instructor to design more experiences that involve higher-level thinking and the synthesis of course concepts (Strelan et al., 2020).

Research on the facilitation of synchronous components clearly indicates that instructors should have a strong presence and be engaged in synchronous learning experiences (Martin et al., 2018). Research-based activities related to instructor facilitation include creating a sense of community with ice breakers or other opening activities, clearly stating goals and objectives, facilitating discussions and activities in the main room or in breakout rooms, teaching content, conducting formative assessment, and answering questions to clarify assignments or misconceptions that learners may have (Martin et al., 2018; Kara, 2021; Richardson et al., 2017).

Assessment and evaluation can occur either during synchronous sessions or outside of the course meetings (Conrad & Openo, 2018). In many cases, assessment is driven by course goals, program goals, and requirements for accreditation (Guerrero-Roldán & Noguera, 2018). Research suggests that a combination of assessments during both synchronous and asynchronous times provide instructors with a more robust sense of learners' performance, which is a benefit to online courses and makes it a bichronous online course.

### ***Benefits of Bichronous Online Learning***

Prior research has shown that the blending of asynchronous and synchronous interactions in online learning has several advantages including improved learning outcomes (Farros et al., 2020), decreases in withdrawal rates (Fowler, 2019), and positive student perceptions of their learning experiences (Peterson et al., 2018). This blending has been considered as a happy medium where there is flexibility through the asynchronous methods and immediacy through the synchronous sessions (Zotti, 2017). A recent meta-analysis confirms student learning performance favors online courses blending both modalities as opposed to using asynchronous learning in isolation (Martin et al., 2021). Yet, we know little about how to blend synchronous and asynchronous activities to create bichronous experiences that engage students while leading to effective learning outcomes. While the research literature base in online learning continues to grow, we believe that the notion of bichronous online learning is an untapped resource and opportunity to explore the boundaries of effective online learning.

### ***Challenges of Bichronous Online Learning***

While research on bichronous online learning is new, one of the intuitive challenges that course designers and instructors face is determining the percentage of course content and the specific course content that should be included in synchronous sessions or asynchronous work (Martin et al., 2023; Yamagata-Lynch, 2014). Using an instructional model similar to in-person flipped instruction, some course designers and instructors have learners view videos or read texts prior to synchronous sessions and then learners collaboratively discuss content or complete activities with other learners during the synchronous sessions (Strelan et al., 2020). However, this model of teaching is dependent on learners engaging with content prior to the synchronous sessions, which could create polarizing outcomes with a large performance gap between learners who thoroughly engage with content during asynchronous activities and those who do not (Stohr et al., 2020; Tang et al., 2020).

Additionally, course designers and instructors must reconcile the fact that learning preferences tend to fall to either completely asynchronous or completely synchronous course formats (Strelan et al., 2020). Some learners prefer completely asynchronous course activities

due to the flexibility of when assignments can be completed, while others prefer having live interaction with classmates and the course instructor (Lehman & Heaviland, 2023). In synchronous sessions, specifically most learners in one study preferred having cameras off and just wanted to use text chat with their instructor (Lehman & Heaviland, 2023). In a study that examined the use of video chat, researchers found that while all learners reported positive interactions, graduate students preferred video chat with other colleagues as opposed to live teaching from the course instructor (Gosmire et al., 2009). Lastly, in their large-scale synthesis of research on online learning Tallent-Runnels and colleagues (2006) recommended to the field that multiple types of research methods be used in the future to examine the benefits and challenges of different types of online learning. To this end, the authors sought to examine best practices in bichronous online courses.

### ***Purpose Statement and Research Questions***

The purpose of this research study is to systematically explore the best practices, benefits, and challenges for bichronous online learning through the lens of award-winning online instructors. In this study, we sought to address the following two research questions:

1. What best practices are used by award-winning online instructors in bichronous online courses?
2. What are some benefits and challenges of bichronous online courses?

## **Method**

This study employed a qualitative research methodology by interviewing 12 award-winning online instructors from across the United States and Canada. This research project was executed in two phases. First, the conceptual model for bichronous online learning was adopted and an interview guide based on the conceptual framework was developed. Second, award-winning online instructors from institutions in the United States and Canada were identified and interviewed.

### ***Instrument***

Based on the conceptual framework used by Martin et al. (2019), we developed a semi-structured interview protocol with ten questions to collect in-depth qualitative information about participants' experiences with bichronous online courses. The interview team met twice to carefully review the questions for clarity and intent. The questions were all open-ended and included opportunities for follow-up questions as needed to ask for elaboration or clarification. The questionnaire included in Appendix A was emailed to the award-winning online instructors ahead of time for them to review. The definition of bichronous online learning was shared in the questionnaire as well as at the beginning of the interview.

### ***Participants***

A list of 56 instructors who had won awards for online teaching at their institutions was first compiled. An email was sent inviting each of them to participate in the interviews and this was followed by an email reminder. Twelve instructors agreed to participate in the hour-long interviews resulting in a purposeful sample. Three instructors were male while the remaining nine were female. The online instructors were from varied disciplines and had varied online

teaching experience ranging from 5 to 20 years. Ten of the online instructors were white with one faculty being Asian American and another being Hispanic. The instructors used a variety of Learning Management Systems (LMSs) and synchronous technologies to teach in bichronous online learning settings. Five of the instructors had optional synchronous sessions, whereas four of them had required synchronous sessions in their bichronous courses. One instructor had a combination of required and optional synchronous sessions; another instructor had optional synchronous sessions but had the students complete an assignment if they did not attend it; and a third instructor required synchronous sessions but provided students multiple options with times and dates to attend.

**Table 1**

*Participants' Teaching Experience and Technology Use*

Participant (Pseudonym)	Subjects taught	Teaching Experience (in years)	Online Teaching Experience (in years)	Learning Management System(s) used	Synchronous Tools used
1 (Ivy)	Education	20	10	Blackboard	Zoom
2 (Chris)	Computer Science	7	7	Canvas	BlueJeans, Microsoft Teams
3 (Emma)	Respiratory Care/Therapy	28	2	Sakai; Blackboard, WebCT, Canvas	Zoom, Jamboard, polling tools
4 (Mark)	History	7	7	Canvas; Blackboard	Zoom
5 (Ana)	Industrial Engineering	7	5	Blackboard	Zoom, Microsoft Teams
6 (Ben)	Spanish	15+	8	Canvas	Zoom
7 (Ruth)	Accounting	14	14	Blackboard	Zoom
8 (Ella)	Communication	10	8	Canvas	Zoom
9 (Lily)	Student Success	14	12	Canvas, Blackboard, BrainHoney	Microsoft Teams
10 (Kate)	Psychology	21	14	Blackboard, Canvas	Zoom, Big Blue Button
11 (Eve)	Educational/Social Sciences	29	10+	Desire 2 Learn/Brightspace	Webex, Zoom
12 (Mia)	Public Health	22	15	Canvas, Engage, Blackboard	Zoom

### ***Data Collection and Analysis***

Twelve award-winning online instructors were interviewed via the Zoom online conferencing application. Each interview ranged from 45 minutes to an hour. At least two members of the research team participated in each interview. While consent to participate in the interview was requested early on, this was reinforced before the recording began. For the ease of online interviews, the questions were displayed on a PowerPoint and shared using the screen sharing option during the interview process. The interviews were transcribed by machine-based Otter transcription, and then further cleaned manually by members of the research team. The transcripts were then de-identified by assigning IDs to participants. A table with details of participant names and assigned IDs was created.

The interview responses for each question were compiled for inductive analysis. Two cycles of coding were used where two researchers read the responses to each question, coded them independently, and then met to discuss the codes to each question. The codes were then combined in NVIVO and similar codes were categorized using the constant comparative method (Patton, 2014) to explain the phenomenon, bichronous online learning, based on the large amount of interview data. All the categories and codes were again discussed by the coders, and themes were identified. After the themes were finalized, at the time of writing, pseudonyms were assigned to the participants.

## **Results**

The themes related to each of the research questions on best practices in bichronous online courses, and benefits and challenges of bichronous online learning are presented in this section. When sharing best practices for bichronous online courses, the instructors in our study explained how they combined best practices in asynchronous and synchronous online learning to succeed in their courses. We begin by illustrating a single case to exemplify how an award-winning instructor blended the components of asynchronous and synchronous online learning to best design and facilitate a bichronous online course. We then present the best practices for asynchronous and synchronous components within bichronous online courses shared by the instructors.

### ***Blending Asynchronous and Synchronous Components in a Bichronous Course***

To illustrate how the best practices in asynchronous and synchronous learning can be intentionally blended to formulate a bichronous online course, we provide the case of one of the instructors from our sample of participants. Our case is drawn from an award-winning instructor in the domain of industrial engineering. Our participant with the pseudonym Ana is an Asian American female working as an associate professor with five years of online teaching experience and working with the Blackboard LMS and Zoom and Microsoft Teams synchronous communication tools. Ana combined a number of best practices to create a different and more complex bichronous learning experience for her students.

Ana teaches a cross-listed course, split between undergraduate students and graduate students with additional requirements for the graduate students in the course. Her course requires access to a modern personal computer, a reliable internet connection, and a variety of specialized software packages (e.g., Integrated Development Environment for Python). Ana noted that her



course is software and programming heavy, which she believes lends itself to bichronous online learning. Ana created her bichronous online course in weekly modules, each with instructional videos created by her using tools like Camtasia and Kalutura, readings, and smaller, focused quizzes with automated feedback and a range of formative assessment activities (e.g., simulations, data analysis problems, etc.) graded for participation. She noted these resources serve as reusable learning artifacts, but also emphasizes the online instructors must constantly update their online learning resources. Notably, Ana is careful to not record more than an hour and a half of total time spent by her students on the instructional videos in a given weekly module. Although Ana did not employ cumulative examinations in her bichronous online course, she does make use of larger applied projects spanning multiple weeks and modules. Ana makes use of reflective and planning assessment activities to support her students on successfully completing the larger, applied learning project. Ana posts announcements to introduce each weekly module and works to provide feedback on the assessment activities within the first few days of the ensuing module.

Ana schedules weekly, one-hour synchronous sessions, typically later in the week such as a Thursday or Friday, after the students completed the module readings and the instructional videos; and after Ana had the opportunity to grade and provide timely feedback on the previous module assessment activities typically due on Sunday nights. All of the synchronous sessions are recorded for her students in the case of re-review or absence from the actual synchronous session. Her synchronous sessions typically involve a pre-designed PowerPoint slide deck to guide the learning experience when lecturing or presenting content, combined with open question and answer periods addressing current course topics and activities in the weekly module as well as a review of the graded assessment from the previous weekly module. Ana also uses synchronous tools for student presentations that are assessed using a rubric by both her and the other students. She also provides office hours in a synchronous format and on-demand synchronous sessions when and where appropriate.

While Ana does not regularly use all the best practices identified in this research by the other award-winning instructors (e.g., discussion forums or breakout rooms), we can observe how she intentionally blended her asynchronous and synchronous components to create a flexible and engaging bichronous online learning experience for her diverse students. Ana emphasized that facilitation is key to establishing instructor presence online and encouraged new online instructors to adopt an incremental approach to using the range of technologies available to online instructors and to spend the necessary time to learn about the needs and challenges of their students. As Ana expressed, “students nowadays are not the same as 10 years ago, 20 years ago, how they digest information already is different for face-to-face classes, I think it's a whole different situation when it comes to online.”

### ***Best Practices for Asynchronous Components in Bichronous Courses***

Within their bichronous online courses, the online instructors in our study explained that the following asynchronous online learning best practices for course design and structure, course resources, instructor presence, discussion forums for student engagement, various types of assessment, and feedback were helpful.

### ***Course Design and Structure***

When designing the asynchronous part of their bichronous online courses, online instructors found that consistent format and organization, course orientation and onboarding, working with instructional designers and Quality Matters training were valuable.

#### **Consistent Format and Organization**

Award-winning online instructors discussed the importance of consistent format and organization related to the asynchronous parts of their bichronous course, so that students knew what to expect. For example, Ana said, “I try to keep the exact same visual format when I deliver content. So we use Blackboard. So I use the same format on the top course objectives or the week objectives.” The term “cadence” was used by Emma to refer to the timing and frequency of communications or interactions or more broadly a rhythmic pattern or pace, that also contribute to the structure of the course. They said:

I’d say that the most important strategies, I try to employ one I call cadence, which is just creating course designs. So that even though you’re not meeting synchronously, you feel an inherent structure to the course. So you feel a pacing, you feel the calendar more than you consult the calendar...in my classes, you will only ever have something due Sunday nights at 11:59pm. anywhere on Earth time. So that’s always consistent. If it’s not Sunday, you don’t have something to do that night.

#### **Course Orientation and Onboarding**

To help students get familiar with the asynchronous parts of the bichronous course, the instructors discussed the importance of an asynchronous course orientation. Ben provided an example:

I have asynchronous onboarding activities...that’s where they start...where they have to review tutorials, the syllabus, they have to complete a syllabus quiz, they have to complete some readiness quizzes just to show that they’re prepared to interact with the course and how it’s set up.

Ana mentioned:

.... the very first week, I don’t usually post any lecture content, it’s usually here’s a video of how to navigate in Blackboard, here’s where you’re going to find the weekly modules, here’s how to submit an assignment or a link to watch this, this is how you submit an assignment.

#### **Working with Instructional Designers and Quality Matters Training**

A best practice recommended by three instructors was working with instructional designers. Chris described it as “the instructional designer sits down with you, when you’re going to create a course, the faculty are the content experts, but the instructional designers, the instructional design expert, so the two come together and create it, to me, the students have had a great experience there, their evaluations and surveys of the courses have been very positive.” Two instructors also emphasized the importance of Quality Matters training to develop engaging online courses.

## ***Course Resources***

Instructors also discussed best practices related to course resources, which were flexible, required, and optional resources, use of videos, use of various resources to engage students, and updating files in real-time.

### Use Various Resources to Engage Students

Instructors discussed how they try to engage students in the asynchronous part of the course using various resources. Kate shared,

I use a lot of memes, a lot of gifs, a lot of YouTube clips, I use a lot of narrated PowerPoints, different online games that they can play as review or practice polling discussion, if there's a tool for it, I can make some kind of use for it.

Ben discussed the online textbook platform that is used to engage the learner, "where they're provided with the tutorials, Introduction to the content for each unit, they have mechanical type activities, to review and to practice, very independent type work."

### Flexible, Required, and Optional Resources

The instructors discussed the importance of including not only required, but also optional resources such as videos or additional content. Ana explained:

So, delivering flexible content..., having a very safe and supportive environment, as well as I'm trying to make it interactive. So, I try to keep those pieces in mind. In our college, we have a lot of students that are also working. So, the students who tend to want to take online courses, in particular, enjoy the same asynchronous components are the ones that can digest it in multiple pieces... So, the way they digest the content cannot be a one-hour lecture or a three-hour lecture or anything like that. So, as I'm designing the courses, I have to keep that in mind, like, how can I make it flexible?

### Using Videos

Several instructors discussed the use of videos in the asynchronous part of the course as a best practice. They shared that these can help establish instructor presence and help students feel they know their instructors. Instructors discussed hosting videos outside of the learning management system by recording on Camtasia and uploading to YouTube which made it easier for students to access, and recording during synchronous sessions, and then sharing it asynchronously for students to watch later. Ana emphasized the importance of short videos. They said:

The most common comment I get from students is that they like the small videos, they said, I can't sit through a long one. But you know, 15-minute mark is usually they will say if you post something that's 25 minutes, I might stop at 10 minutes anyway, like, I might not even go through the whole video.

Emma also discussed the importance of reusing artifacts and not having to re-record videos every semester. They said:

So very often, that's very natural to think of things like lecture material, and I'm going to use the same videos for two or three years, I can invest into making them really good, as opposed to if I'm just going to be using it for this semester, it's a lot easier to just say, I'll do this real quick for the semester, because the impact is limited.

### Updating Resources in Real-Time

Ruth discussed the importance of being able to update resources during the course if needed, saying:

I took all of my files out of the learning management system, and moved everything into a program like Dropbox, so that there are just URLs that the students access. And then if there is a problem or an update, or something that needs to be changed, then you can change it, save it, and you don't miss uploading, or one of the steps there. And that seems to speed things up for students as well. And they seem to like the fact that they're getting things real time.

### ***Instructor Presence***

Instructor presence was discussed by online instructors as a best practice in the asynchronous part of bichronous courses, which they established by using email to connect with students, using announcements, and being present in discussion forums.

### Email to Connect with Students

Instructors emailed students to check on how they were doing, to connect with them, remind them of missing assignments, and for students to connect with them. Ruth stated, "I have to be involved and interacting with the students as much as I can. So, I set aside time each day to answer emails..." Lily mentioned:

It is a lot of work to create that online instructor presence. It requires quite a bit of time upfront and constant check-ins with my students. But yes, I feel like they really know me they comment on how like, unlike other online classes, they feel like they really get to know me that I really care about them.

### Announcements

Instructors discussed using periodic announcements in the form of written announcements, and video announcements to establish instructor presence. They emphasized the importance of sending weekly announcements to establish instructor presence, and also to not be very verbose. Ana discussed sending video announcements,

The first video is usually a five-minute video that I actually will record every week. And that 5-10-minute video is announcements or whatever that I'm trying to react to. So if they just had a quiz and I just posted it, then I'll discuss that a little bit.

### Discussion Forums

Discussion forums were discussed as a separate best practice but were also mentioned as being used to establish instructor presence through which instructors stay involved.

### ***Discussion Forums for Student Engagement***

To help students connect and engage with their peers in the asynchronous component of their bichronous courses, a best practice recommended by online instructors was discussion forums. Some of the best practices they shared included, using discussions for video introductions, using Voicethread for audio visual discussions, facilitating content and resource-based discussions, and using discussions for responding to questions from students. Mark commented:

One of the key things I've employed... would be online discussions that have a pretty open-ended focus question or series of questions that enable students to really apply the independent analysis skills in a way that's relatively flexible, in which they can gauge with their own interests in relation to what we've covered that week.

Some of the best practice discussion strategies that online instructors shared included, to use them judiciously so that students do not have discussion fatigue, have accountability and monitor student discussions, and provide formative feedback.

### ***Different Types of Assessment***

Award-winning online instructors found that different types of assessments including quizzes and exams, reflective assessments, applied learning projects and game-based points were an important best practice in the asynchronous part of their bichronous courses.

Several of the instructors discussed including quizzes, however instructors also discussed open book quizzes and not locked down browsers. Ivy discussed providing opportunities to revise and resubmit quizzes with unlimited tries, stating, "they retake it again. And they can apply that knowledge that they got from getting something wrong. And the next time I take advantage of the question pools so that every time they retake a quiz, they don't get the exact same question." Ivy also required students to complete an activity, receive the code and include it in a quiz to move on to the next section and conducted stealth assessments to check on students without referring to them as quizzes. Instructors used asynchronous exams and also AI for exams.

Instructors also discussed the importance of other types of assessments in their bichronous courses, such as reflective assessments and applied learning projects which provided students the opportunity to engage with a variety of topics. Ben commented:

So the reflection is a written reflection that they come back to the LMS Canvas to do and it's a five-point reflection of basically summarizing what have I learned this week, what am I struggling with? What am I doing really well with? What could I do to improve and what can my instructor do to help me improve?

Ivy also discussed how students have to collect certain core or cumulative points to move to the next segment, referring to it as a game-based teaching approach.

## ***Feedback***

A best practice in the asynchronous part of online instructors' bichronous courses was the provision of different types of feedback and the timeliness of feedback. Automated, manual, written and oral feedback were discussed by online instructors. They provided automated feedback in large enrollment undergrad MOOC type of courses, but in masters' courses they discussed grading manually and including project-based assessments. Ben discussed providing both written and oral feedback using rubrics, based on what feedback the student required. They explained:

We go in and provide response or feedback to every individual comment by every single student, as well as a quantitative assessment with a rubric that's attached to the assignments that were they're both getting individualized attention from us, where we're providing them, either written feedback, or oral feedback.

Instructors also discussed providing timely feedback and dialogue to help establish instructor presence. Lily commented:

I generally have like a 24 hour to 48 hour window that I will give responses and I give detailed feedback using their name, and just very specifics about what they written as questions, try and get in a dialogue with them...And I think that's a really important part because I feel like the courses are organized, there's the content, there's assessment and all that kind of stuff, but my presence and my involvement in the course, it's important to me that they see me and that they know that I'm there and that I care about them.

## ***Best Practices for Synchronous Components in Bichronous Courses***

The online instructors discussed several best practices for the synchronous aspect of their online bichronous courses. They discussed different types of synchronous sessions activities, going beyond content delivery to connecting students, and flexibility in synchronous sessions.

### ***Synchronous Session Activities***

Instructors discussed the need for various types of synchronous activities including lectures and presentations, Q&A sessions, office hours, group discussions, breakout sessions, and integrating multimedia and other functionality.

### **Lectures and Presentations**

Instructors delivered lectures, presentations, and webinars to introduce new content and teach during synchronous sessions. Kate stated, "I'll have more of a traditional lecture, which I'll meet with them maybe once a week. And it's more of a, you've had a couple of days on the module. Now I'm going to give you sort of a 3000 feet overview." Other instructors discussed how they would work through a problem with students during a session, teach them how to follow a specific process or use software (e.g., SPSS), or use the time to "focus on the hardest parts of the course, the things that they might need a little bit more help with" (Ruth).

### Group Discussions

Some instructors discussed the importance of having a dialogue, “live conversation,” or “candid conversation” and not only lecturing in synchronous sessions. They used the time to discuss and reflect with the students. Chris mentioned:

What I found is that, if I could give them many lectures ahead of time, a quiz or a discussion with some questions, so that they could be prepared, and then to call on people or have people volunteer their time to share their responses.

For group discussions, instructors used both moderated discussions, and think-pair-share activities. They also used polls to check for understanding and the text chat where students could post their questions or doubts during discussions.

### Breakout Sessions

Instructors found it important for students to interact with one another, for which they broke up students into small groups, or breakout rooms through zoom, and conducted various activities. For instance, Chris had case studies that students discussed, and then presented when they were back in the main room and commented “I felt that that was extremely valuable. The students did give feedback that they enjoyed that very much because they were with small groups.” Lily used think-pair-share activities in breakout rooms:

So that’s a strategy that I used... have them think about something and then put them in groups. And...this was a career exploration class...I put them in groups according to maybe the college in which they were interested, the career choices, and then having them kind of modeling how they could go into that space and work together. And then always having them at the end, report back.

### Q&A Session

Instructors also used the synchronous sessions for Q&A sessions or office hours. Ella said:

I asked them to submit questions in advance. And they don’t typically do that. If students join, they will ask a lot of questions. And that’s very helpful for everybody. Because then those questions are asked and answered in a recorded format that can then be posted, and students can watch it asynchronously.

Another instructor offered points for students who attended the session, or watched the recording and completed an assignment, to increase attendance.

### Integrating Multimedia and Other Functionality

Instructors emphasized the importance of integrating multimedia during synchronous sessions to inspire and engage different types of learners. Digital presentations were also followed by Kahoot activities to engage learners. One instructor used Google slides during breakout rooms while another instructor used whiteboard activities, specifically Jamboard to make the sessions interactive. Instructors also used screen sharing through which they were able

to model processes or share Google earth to show students various regions. Several instructors used the polling features during synchronous sessions to engage learners.

### ***Going Beyond Content Delivery to Connecting Students***

Instructors stated that a best practice during synchronous sessions was to go beyond content delivery to aim for community-building and helping students feel comfortable. They used several strategies to help students get to know each other and build community, such as icebreakers, and a student lounge.

Almost all the instructors used the synchronous sessions for getting to know students, helping them connect with peers, and building community. Mia explained,

I'm there trying to give them the support that they would have gotten from me had we been face to face... using those synchronous times to create community is one of the most important things, and also, for them to get to know me.

Instructors wanted to make students comfortable and highlighted the importance of students getting the chance to have their voices heard and connecting with each other.

Mark and Emma described their strategies as “I try and make it very conversational. That relaxed, approachable way that draws students in,” “I create a supportive environment,” and “I try and encourage people who haven't said as much to come in.”

One strategy that several instructors mentioned were Icebreakers, to draw students in. Some instructors began sessions by checking in with the students to ask how they were doing or feeling. Lily shared:

I would always start out with a quick question, like an icebreaker type thing like about what was going on in their week, or sharing like, their favorite vacation they went on or just something fun that they could talk about that they cared about. And then I found that that helped them, like, get comfortable, realize they can turn off their camera, realize they can unmute, and then also show that I care about them and what's going on with them.

Emma also used synchronous sessions as a “student lounge” or “social gathering place.” Students were encouraged to turn on their cameras and interact with each other.

### ***Flexibility in Synchronous Sessions***

Another best practice that was discussed by the online instructors was including different types of synchronous sessions (e.g., required, optional) and providing flexibility. Some instructors offered optional synchronous sessions, so that students can watch the recordings later. One of the instructors offered a synchronous recitation option which some students attended during the live time and others watched the recording. Some other instructors provided students with multiple sessions of which students had to attend a required number. For instance, Eve offered synchronous sessions two days in a week so students could attend at least one, especially if they were at work or had other commitments. They explained:



I've been successful in doing that. Because a lot of times, it's listed right in the course schedule like, you know, weekly synchronous session at 7pm on Tuesdays. But I've been able to by offering them choices, and I've kind of you know, landed on a couple of times that seemed to work, I have yet to have somebody say I can't make either time.

Ruth assigned participation points for attending the synchronous session live. If students were not able to attend live, they had to complete an assignment to earn points. This increased synchronous session attendance and was also helpful in holding the students accountable to watch the synchronous sessions.

### ***Benefits of Bichronous Online Learning***

The online instructors discussed a number of benefits for bichronous online courses, such as, increases student access, builds rapport with students, increases student presence, engagement and builds community among students, "the best of both worlds," increases instructor presence, develops student communication and collaboration skills.

#### Increases Student Access

Instructors discussed how students had more opportunities to have access to their instructors and peers through bichronous online learning. Kate commented, "I think there's something that knowing there's access. And that in and of itself is comforting for them to know that there is a time where they can find an actual human being that they can interact with."

#### Builds Rapport with Students

Instructors discussed how the increased opportunities for interactions in bichronous online courses help the instructor to build rapport with students. Mark explained,

Even though I always make myself very much available to my students in asynchronous courses, they don't necessarily take that opportunity to Zoom with me, for example. But when they do they finally benefit from it. So, there's a great benefit always to that direct interaction that I find bichronous courses already have built into them.

Instructors gave various examples of interactions with students, such as conversations with students that took place after synchronous sessions when the instructor decided to "stick around," and conversations in the chat box in Zoom during synchronous sessions that led to further communications asynchronously. One instructor reflected that instructor videos in the asynchronous course had their advantages, but that real-time interaction helped students see the instructor in a different light. Another instructor similarly stated that the combination of asynchronous and synchronous communications helped them see what challenges students faced and get to know their strengths and weaknesses. Mark mentioned, "The biggest benefit is rapport, getting much more of a sense of my students, and getting to know them, and then being able to have, like, a little meeting with some of them."

#### Increases Student Presence, Engagement, and Builds Community

In bichronous courses, students are able to engage in different formats, both asynchronous and synchronous and therefore they interact more with each other and make more

connections, according to instructors. They believed that the opportunity to engage synchronously or asynchronously works well for students who are shy to speak or are more comfortable writing, and for those who prefer to talk and want more interaction. Instructors are also able to see how students apply and dialogue with the instructors on topics they have learned. Ella stated,

The benefits of having a little bit of both allows the students to feel like they have autonomy, which is why they usually sign up for online learning. But they also feel connected to the institution, to other students to, you know, to have that learning environment that comes with meeting other people.

Bichronous courses also facilitate student presence, interactions among peers, and community-building. Kate shared,

I had a student who joined early every class period and played guitar for like half an hour like a coffeehouse. It was lovely, until I had to interrupt it to teach, but it was a way for them to have this moment together that they would normally have before I walked into the classroom. And I think everyone needed that sense of connection.

### ***Best of Both Worlds***

Instructors considered bichronous online learning as the best of both worlds. Ivy reflected that combining asynchronous and synchronous is valuable because it is the best of both worlds, but instructors have to very deliberately use both, and Ruth stated that, “Having the blend, as opposed to doing one or the other gives the benefits of a live classroom without destroying the benefits of the online environment.” Instructors believed it gave them the opportunity to capitalize on the affordances of each environment, with Ivy stating, “I think what it allows you to be very deliberate about what you do in class, and how you take advantage of that in class time.” They also discussed how students have the freedom to engage differently in asynchronous and synchronous settings.

### **Increases Instructor Presence**

Bichronous courses provide opportunities to increase instructor presence. Lily commented,

To build instructor presence in an asynchronous course it takes a lot of work and a lot of time. And I think that having a synchronous component really kind of accelerates that instructor presence just because they’re seeing you, they’re listening to you. They’re connecting with you multiple times per week, and also with their classmates.

### **Develops Student Communication and Collaboration Skills**

Bichronous courses also help develop student communication and collaboration skills in multiple virtual formats. Mia discussed, “that’s important for them to learn communication skills, learn to talk to one another.”

### ***Challenges of Bichronous Online Learning***

The online instructors discussed challenges of bichronous online learning including content design and decision making, requiring and scheduling synchronous sessions, course descriptions not communicating the bichronous modalities, time taken to design and facilitate bichronous due to the two modalities, technology and access, and breakout rooms.

#### Content Design and Decision Making

Instructors discussed their challenges making decisions about what is delivered asynchronously and what is delivered synchronously online. Ivy stated, “I want to take advantage of the fact that they are in a Zoom room together and able to interact and talk to each other. If it’s something that doesn’t require them to be together, then I move it offline or asynchronous.” Instructors struggled with presenting information in various ways, how to integrate but not duplicate content, and make the design “manageable for grading.” One instructor pointed out that online synchronous sessions were not the same as face-to-face teaching, especially with respect to facilitation. Two additional aspects that were discussed for content design were knowing their learners and designing based on the context and course level.

#### Requiring and Scheduling Synchronous Sessions

Another challenge discussed was how synchronous sessions were scheduled. In some cases, the universities scheduled sessions that were on the student schedule and students had to make it work. In other cases, the instructors scheduled sessions taking the students' availability into consideration, which was challenging as several students worked full time and had different schedules or were on different time zones. Lily mentioned:

The logistics of that just makes my head hurt, trying to figure out their schedules. but I think like having that set time that they’re committed to that they know at the beginning, as they’re planning their schedules, I think that’s critical if you’re going to teach a bichronous course, that they have that specific time set aside.

Additionally, instructors wanted to be flexible, but struggled to find solutions for students who could not attend synchronous sessions due to various reasons.

#### Course Descriptions Don’t Communicate Bichronous Modality

An additional challenge is that when students sign up for bichronous courses, they are not always aware of both the components, so it is important to communicate this in schedules. Ella discussed:

I don’t think that the course description of my course or other courses that have this bichronous component, I don’t think that they do enough in the course description, just tell students that this is the expectation, because I’ll have students who will come and say like, ‘I didn’t take this class so that I could try and find the time to meet with these other people.’

#### Time Taken to Design and Facilitate Bichronous Online Courses, Due to the Two Modalities

The time taken to design both asynchronous and synchronous aspects of the online course was challenging for instructors. Some shared that they had taught asynchronous courses before,

but bichronous involved more effort in the design, facilitation, and also the assessments. Ruth stated, “It takes more work to do bichronous than it does to do asynchronous. Synchronous, of course, takes the most time because you’re having live sessions.” This was particularly true of large bichronous courses, where instructors found it difficult to manage discussions with a large number of students.

### Technology and Access

Students may not always have the appropriate technologies to participate and be successful in bichronous courses, which impedes their progress and is challenging for instructors. Some students use an iPad or another mobile device such as their cell phone which may not work adequately, and several can face challenges with cameras, microphones, or internet quality. In one case, Ben discussed the challenges of integrating the textbook within the course learning management system or having functionality in Voicethread to accommodate groups. Instructors also commented on the challenge of students recording synchronous sessions, especially when other students were engaging with the instructor or peers and asking or responding to questions, and how this might get used elsewhere. They felt that it was a student privacy issue, and that they were unaware of university policy on that.

### Challenges in Breakout Rooms

When facilitating group activities in synchronous sessions of bichronous online courses instructors faced several challenges. This included silence in the breakout rooms, struggling with no conversations at the beginning of the class when students join the synchronous online room, issues with students logging in and out of the session, and their own challenges with “popping in and out” of breakout rooms but trying to give guidance in a limited time, and gauging the time needed for collaborative activities in breakout rooms.

## **Discussion**

This study examined the best practices, benefits, and challenges of bichronous online learning through award-winning online instructor perspectives. These findings can impact bichronous course quality and decision-making to offer the intentional blending of both asynchronous and synchronous modalities. The authors acknowledge that bichronous online learning is not a new or novel construct. Rather, we aim to provide a coherent definition and framework from which to better explain the intentional blending of asynchronous and synchronous online learning experiences. In doing so, we hope to provide a better vocabulary and rich description of the blending of bichronous online learning experiences.

### ***Bichronous Online Learning Best Practices***

The findings from this study reinforced several of the best practices discussed in prior research on asynchronous and synchronous online courses. In this study, with regard to best practices for asynchronous components within bichronous online courses, the online instructors recommended course design and structure, course resources, discussion forums, instructor presence, and timely assessment and feedback. Researchers have discussed the importance of course design and structure so that course material is easy to find, and a course is easy to access (Czerkawski & Lyman, 2016; Shelton & Saltsman, 2011). Our findings were also reinforced using various course resources including required and optional content, videos, reusable artifacts

(Lowenthal et al., 2020; Muniasamy, & Alasiry, 2020; Quality Matters, 2023). Research has also emphasized the meaningful integration of asynchronous online discussions (Fehrman & Watson, 2021; Oyarzun & Martin, 2023), establishing instructor presence (Martin et al., 2018; Richardson et al., 2015) and including different types of assessments and feedback. Our findings align with studies that have recommended the integration of a variety of assessment strategies including projects, portfolios, multimedia resources, discussion boards and research papers (Sun et al., 2008) and also providing timely feedback in different formats (Leibold et al., 2015; Peterson, 2016).

With regard to best practices for the synchronous components within bichronous courses, the online instructors recommended various synchronous activities, going beyond content delivery, and types of synchronous sessions for being flexible. Our findings are in alignment with prior researchers who discussed various types of synchronous session activities such as lectures and presentations, question and answer sessions including office hours, group-based discussion, breakout session, and integrating multimedia and other functionality (Gillett-Swan, 2017; Kara, 2021; Lowenthal et al., 2017). This study also extends the findings to go beyond content delivery to community building, icebreaker activities, and the student lounge which researchers have discussed as important to be able to socialize and interact with other learners through the synchronous sessions (Lin & Gao, 2020; Richardson et al., 2017). And finally, this study recommends different types of synchronous sessions including optional, required, and those with required assignments and points (e.g., student presentations).

We illustrated one instructor's approach to manifesting a bichronous online course to meet the unique needs of her content and students. While no two instructors will employ the exact same configuration of bichronous online learning, their descriptions of how to intentionally blend their courses demonstrates that bichronous online learning provides affordances and experiences that go above and beyond asynchronous or synchronous online learning modalities. Instructors carefully select which best practices best align with their student learning outcomes and the unique needs of their students and create more sophisticated and elaborate designs of online learning.

### ***Bichronous Online Learning Benefits and Challenges***

The online instructors discussed a number of benefits of bichronous online courses. Several of these benefits support both online instructors and students in designing and facilitating effective online courses. Just as instructors refer to the benefit of blending as best of both worlds and deliberate use of both, in a prior study, Zotti (2017) considers the blending of asynchronous and synchronous sessions to be a happy medium. Also, other benefits such as increased student access to instructors, building of rapport with students, increased instructor presence (Oyarzun et al., 2017), increased student engagement (Martin & Bolliger, 2018), building community among students, and developing student communication and collaboration (Oyarzun & Martin, 2023) skills are reinforced in this study.

The online instructors discussed some challenges for bichronous online learning including, content design and decision making, requiring and scheduling synchronous sessions, time taken to design and facilitate bichronous due to the two modalities, course descriptions not communicating the bichronous modalities, technology and access, and breakout rooms. Some of

these challenges exist when using one modality, for example synchronous online courses have challenges with requiring and scheduling synchronous sessions, technology and access and breakout rooms. Instructors have to find strategies and support to overcome the challenges so that both them and their students can be successful. The other challenges are unique to bichronous online courses, and arise from the blending of both modalities, content design and decision making, time taken to design and facilitate bichronous due to the two modalities (Yamagata-Lynch, 2014), course descriptions not communicating the bichronous modalities. With the adoption of more bichronous online courses, and research communicating best practices, strategies for content design, and lead time for designing and facilitating bichronous courses will assist online instructors.

### ***Limitations***

As this research is an in-depth qualitative exploration of bichronous online learning practices, benefits and challenges based on the experiences of award-winning online instructors, we remind our readers that a generalization of the findings is not the outcome of this work. Rather, we attempted to provide a rich account of bichronous online learning best practices that may or may not be transferable to a different online instructor's domain, student population, or context. Our instructors were selected by their respective institutions for their online teaching practices. The requirements for earning such awards vary across institutions and each institution will have its own expectations and culture surrounding exemplary online learning. Additional steps in the research process could have enhanced the credibility (e.g., member-checking or triangulation) of our research findings. In addition, this study solely relied on interview data. This could be a potential limitation of the study due to the risk of bias and future researchers are recommended to employ triangulation of findings.

### ***Future Research and Practice***

Bichronous online learning is a nascent research area with great potential to transform online teaching and learning practices across educational settings (e.g., higher education, K-12, etc.). While our current research has attempted to explore and explain bichronous online learning with in-depth interviews, future research efforts should attempt to pinpoint the configurations and abstractions in bichronous online learning that afford students the most potential for flexible and quality online learning experiences. For instance, online scholars may elect to triangulate data sources, such as a systematic evaluation of a bichronous online course's design, an online instructor's facilitation practices during a live course, or by employing learning analytics approaches to examine behaviors (e.g., log trace data). Further, while exploratory research in bichronous online learning is growing, other traditional quantitative methods using correlational and experimental designs may be appropriate to provide online instructors and researchers more generalizable and casual accounts of bichronous online learning. We encourage online instructors and instructional designers to collaborate to test different designs and configurations in their online teaching practices and to share these experiences within and beyond their communities. Future researchers could also examine the use of various instructional technologies that might blend into both the asynchronous and synchronous modalities.

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## Appendix A

### Bichronous Online Learning – Award-winning online instructor interview questionnaire

Bichronous online learning: Blending of both asynchronous and synchronous online learning, where students can participate in anytime, anywhere learning during the asynchronous parts of the course but then participate in real-time activities for the synchronous sessions.

1. Before we get into the bichronous or blending of asynchronous and synchronous online instruction, can you describe some of the strategies and best practices you use in the asynchronous aspect of your online course?
2. Can you next elaborate on the strategies and best practices you use in the synchronous aspect of your online course?
3. So that we can get a bit of context, please tell us about the bichronous courses you teach?
4. 4. When you designed your online course, describe how you blended synchronous and asynchronous components in your online courses?
5. How did you facilitate the synchronous and asynchronous components of your online course?
6. How did you assess your online students in the bichronous course?
7. Reflecting on your bichronous course, what are some best practices/strategies that worked well for you on blending asynchronous and synchronous online learning?
8. What are some benefits to bichronous online courses?
9. What are some challenges that surface in bichronous online courses?
10. Is there anything else related to teaching a bichronous online course that you would like to tell us about?