# Synchronous vs. asynchronous with McLennon Wilson

# Podcast transcript

**James Skidmore:**

Welcome to this webinar on Online Teaching and Learning. I'm your host, James Skidmore, a professor at the University of Waterloo. For as long as humans have existed, they have debated some key questions. Coffee or tea? Books or movies? Long pants or short pants? And now, during the COVID-19 pandemic, another debate has emerged: synchronous or asynchronous instruction? Joining me to discuss this issue is McLennon Wilson, a PhD student at the University of Waterloo. McLennon, welcome to the program.

**McLennon Wilson:**

Thank you, Dr. Skidmore. I wish I had prepared as eloquent an introduction.

**JS:**

If that's your idea of eloquent, we need to talk. I'm a little concerned. So you've been looking into the issue of synchronous and asynchronous instruction. I'd like you to start by explaining to us: just what is that? Can you define those terms for us? Fill us in on what that's about.

**MW:**

Absolutely. We had a great talk last night with Bill [Najah] talking about online versus face-to-face; so synchronous is just parsing those terms in a little bit more definition. So when we're talking about synchronous e-learning, what we're really talking about is instantaneous modes of communication that are facilitated by online software like Teams [or] D2L. What makes it synchronous is that [there is] very low latency between the communication between two people; or no latency. It's almost instantaneous, the responding back and forth. So this could be a setting such as this, where we are in Teams and we're discussing face to face and responding to one another. Or it could also be like instant messaging; that is also facilitated by lots of new software. Asynchronous, by contrast, would be where there's a greater delay or a potential for a greater delay in the communication between the people that are communicating in the course. So this could be like a discussion board on LEARN, where someone could post a message at five o'clock and someone might respond hours or days later. So that would be the clear difference there.

**JS:**

Right, and so obviously, they're going to be some advantages or disadvantages to each approach, I'm assuming, [and] I think you'd agree with that. So I'm wondering about that; can you walk us through the advantages of each, or the disadvantages of each, just to get a sense of where the problems or the pressure points lie.

**MW:**

For sure. We'll start off with synchronous. This encapsulates more traditional lecturing or classroom activities as well as things like [what] we're doing right now, in this call, where we're interacting face to face. One of the real strengths of synchronous learning is that it really fosters a sense of community within the classroom. By allowing people to have conversations and debates in real time, you form connections with the people you're in the learning community with. So I've developed a certain level of familiarity with lots of the people here in this classroom and [with] yourself, Dr. Skidmore, most directly through our face-to-face interaction, using synchronous communication like Teams.

**MW:**

Another element that I think is really important about synchronous learning is that it preserves the human element of communication, which is really important not only to fostering full understanding but also maintaining attention. I was doing a lot of reading about what some of the big differentiating factors between synchronous and asynchronous learning might be and I stumbled across this hypothesis, which I am over the moon in love with. It's called the Kock's Media Naturalness hypothesis.

**JS:**

Sorry, say that again slowly for us.

**MW:**

Absolutely. It's called Kock's Media Naturalness Hypothesis. It's an evolutionary – or biologically rooted – argument. [Ned] Kock lays out the argument that we are biologically programmed to find face-to-face human interaction to be one of the most attention-getting stimuli we'll ever perceive. When we're interacting one-on-one with another person, it is among the most attention-grabbing things that we would ever attend to in our surroundings. And what Kock

argues is that, in synchronous and in asynchronous learning, you have sometimes a disconnect between that naturalness, that human face-to-face element. And the further away you get from that human-to-human, face-to-face interaction, the more difficulty learners might have in sustaining their attention. So this would be a big strength of synchronous methods such as this. Kock argues that it's much easier for students to maintain their attention in an instantaneous synchronous environment than it would be in a more detached, asynchronous or isolated learning environment. Does that make sense?

**JS:**

It does. Can I ask a question about that quickly? In that hypothesis, he's dealing only with mediated environments such as what we're in right now. We did have our talk about the face-to-face versus online instruction; so I'm wondering, does it also apply to physical proximity?

**MW:**

Absolutely. I think the argument would be that the ultimate way of sustaining people's attention in a conversational environment would be face-to-face. I think a step down from that would be synchronous e-learning. And then asynchronous.

**JS:**

Okay, what about face-to-face but [in] a 500-seat lecture hall and the prof is the little person down at the front? And the student [is] looking [and] trying to get that face-to-face [interaction]; [does] that idea of connecting with the face of the other person [work if the student] is up on the 20th or 30th row?

**MW:**

I'd say that there are some elements of the human element that are preserved there. But you're right; even in moving from a face-to-face, one-on-one conversation to something of that scale, you're already starting to lose some of those very natural communicative signals [like] nonverbal communicative cues or the responsivity between [the listener and] the speaker. So, yeah, I think you're already starting to lose some of the human elements in a classroom of that scale. And I think that Kock would probably argue that you continue to lose those as you shift away from a live classroom with 500 people to perhaps a Zoom call with 500 people where you have even less responsive between speaker and listener.

**JS:**

Okay, good. Sorry, carry on. I'm really glad you explained that and brought that hypothesis to our attention. That's wonderful.

**MW:**

Absolutely. And I don't want to dwell on this too long, but I have to plug one of my favourite research interests, which is the concept of mind wandering; how people sustain their attention. Just to give a quick definition: when I say mind wandering, what I really mean is kind of a spontaneous drifting of your thoughts – a more colloquial way of talking about this might be daydreaming. So [an example of that might be] "my goal is to be attending to the Zoom call right now but my mind wanders off to other topics." A lot of emergent research has been looking at mind wandering in online versus live lecturing settings, and looking at how the format by which instruction is being delivered might influence students' rates of mind wandering or [their] experience of mind wandering. And one thing I've been finding a lot through my readings is that, when you move towards an online setting, a lot of students report more difficulty sustaining their attention and [trying] to avoid mind wandering as the time goes on.

**MW:**

So, one thing I wanted to highlight here as an advantage of synchronous over asynchronous is that, with asynchronous lecture styles – so a recorded lecture that students are then watching independently –, some research is showing that mind wandering rates skyrocket very quickly into the delivery of these online asynchronous lectures. So I think an advantage of the synchronous method is that – and more research needs to be done to confirm [this hypothesis] – it may be a better way of fending off mind wandering, given the preservation of some of those human communicative cues. And also, if you are going to be doing asynchronous videos like recorded videos, keeping them short and interspersing other activities might be really important. Because your students' minds are want to wander.

**JS:**

Has your research shown anything about the ideal length with either synchronous or asynchronous? With synchronous, you say at some point attention is going to diminish; at some point our minds will wander, whether we want them to or not. Do we have a sense of when that happens? I'm assuming it's partially how entertaining whatever you're involved with is, or how invested you are in it.

**MW:**

Absolutely. There are so many factors there. I know, in an online environment, some research has shown that at 21 minutes, so around 20 minutes, you're achieving peak levels of mind wandering. And that is comparable to the amount of mind wandering you'll have an hour into a recorded lecture. So, really, the upper cap – and this is the absolute maximum for a cap – would be 20 minutes.

**JS:**

Sorry, 20 minutes asynchronously or synchronously?

**MW:**

Asynchronously. Although I'm sure even synchronous delivery would benefit from interspersed activities. I'm going to talk about that a little bit later on as well. But I think in terms of sustaining attention in an online medium, whether it's synchronous or asynchronous, you don't want to be monologuing for too long in order to preserve students' attention.

**JS:**

Okay, so we have a sense then of where the advantages are of the synchronous side of things. How about the asynchronous side? Is there anything good to be said about that?

**MW:**

Absolutely. Bill did a great job yesterday, already, highlighting a lot of these. One of the huge advantages of asynchronous over synchronous is the flexibility it has for students in terms of the time that they can allot to their studies; the locations that [it] enables them to study from, very easily accommodating the needs of many students, [accommodating] things that may be difficult to accommodate in a 500-person lecture – or even in a synchronous environment where things are going on the fly and you can't really pause to address issues. Asynchronous delivery allows for these things to be prepared for in advance and to be paused and addressed if there are needs or accessibility accommodations that become necessary to the delivery of the course. So one benefit [is] just flexibility.

**MW:**

Also, a big benefit of asynchronous over synchronous is it really allows [more freedom] in how students interact with content and how instructors present content to their students. So, the pragmatics of delivering a synchronous classroom experience might [involve] an allotment of an hour and a half of time [or] two hours; if you're like me, this semester I have a three-hour asynchronous class. With asynchronous, you really have a lot more freedom in how you want to break up or deliver the content in the course. This allows for really easy interactive activities that might, as I mentioned earlier, sustain students' motivation or attention. I read a really fascinating study the other day that found that interpolating asynchronous videos with quizzes – so, rather than having an hour-long lecture, you have 15-minute lecture components with five minute activities interspersed – does a huge benefit for students' enthusiasm, for students' retention of the information, as well as reducing their mind wandering rates. This is something that is uniquely offered by asynchronous environments, I think. You could attempt to do some of these in a synchronous environment as well, but I think asynchronous really allows for the flexibility, on the instructor's part, to incorporate really interesting attention-grabbing activities that can enrich student learning.

**JS:**

Interesting. So there are benefits to both. There are some disadvantages too, of course. What struck me as I was listening to your description of some of the advantages of asynchronous was that those advantages seem to be connected a bit more to the externals, to the housekeeping things, to time management and those sorts of things to allow for flexibility for the learner. [For example] they can do a chunk of work here and then they go off and do something and then they come back and do another chunk. Synchronous wouldn't allow that; with synchronous, you have to be there for that time. But the benefits of the synchronous seem to be much more about the actual learning aspect, [about] bringing in learning. Although [that's] not entirely [uncommon] on the asynchronous side either, because you mentioned this one study that showed that a canned video plus an activity, [and then again] a canned video plus an activity can be a good way to do it, too.

**MW:**

I don't think I'd go so far as to say that, across the board, synchronous is better for fostering learning per se. I think it fosters a sense of community and interactivity. And there are certain learning activities that play to its strengths. But I think asynchronous also has a lot to offer in terms of high-quality interactive activities that could be really conducive to learning.

**JS:**

So you've been working on this, you've been thinking about this. Have you come to any conclusions about, if you were an instructor, how would you approach this? What would be your approach to this?

**MW:**

I would say, really, instructors should avoid focusing on black-or-white judgments about whether synchronous or asynchronous [approaches] are inherently superior. I don't feel like there's an inherently superior method for teaching. I think both have absolute strengths. And I think a really mindful, motivated teacher can find ways to incorporate both asynchronous and synchronous elements to their advantage. I think, more than anything, integration of both is really key. And let's keep in mind that even the most traditional courses – if we're thinking about a traditional lecture or in-person course – there have always been asynchronous elements of undergraduate learning. There's been independent study; there are take home assignments. Instructors have always used, to some degree, synchronous and asynchronous teaching methods to their advantage. In today's world, where we have so much technology at our disposal, I think it's really just [up to the instructor] to be open to learning new methods and to being innovative in their teaching; to really use these new technologies to their full advantage to the benefit of students.

**JS:**

So, if you were teaching, what would be your ideal way of doing it? Say you were teaching this course, how would you do it?

**MW:**

I'm not trying to impress you or anything here, [but] I think we really have hit on a pretty nice balance in this course. The independent learning that comes through a modular teaching, where we have different content-related topics, activities, and independent readings associated with those modules, I think is highly effective. Of course, the ProfChats [and the webinars] that we're doing each week as a regular part of our schedule provide a way for us to foster a sense of community in this class, to really dig in and expose ourselves to other ways of thinking about these problems. So I really think that's [balanced]. If I were to design a course such as this, I would have perhaps the "bread and butter" of the course, the real meat of the content, delivered asynchronously; so students could really digest [the contents] and think about them and form their own ideas and wrestle with some of the ideas themselves. But then [I'd also] have regular

opportunities for students to engage with their instructor and with their peers, to flesh out and to expand the horizons of how they're thinking about that information.

**JS:**

I like the way you've put that. The idea of the asynchronous portion, the away-from-live-screen time [being] the time to digest, the time to really to chew on things. And then we come to the synchronous parts, where we're all talking together, and that's where we can exchange on that. I've always felt that there's a need for us as human beings in terms of learning to share with each other, to interact with each other about what we're dealing with. We can all go off and read and research and do our thing; but there's no joy in that unless we can talk about somebody else. I just find that the pure enjoyment value of it does come from that kind of [interaction] where we can really exchange with each other.

**MW:**

Absolutely. I think that's one of the luxuries we're deprived [of] in the time of the pandemic. Now, when I have a breakthrough in a project I'm working on, I can't go next door and share my findings with a peer, or bounce new ideas off [of them] or get their impressions on where I should go next. And I feel like that's a really essential aspect of any learning, and especially learning in an online environment.

**JS:**

I'm kind of a self-talker, like I talk to myself a lot; so you need to develop that capability when you have a breakthrough, just to talk to yourself about it. It's really the only way you can deal with it when we're isolated the way we are. Now, I'd like to turn it over for the Q&A, but do you have any last thoughts you want to get out there before we ask if there are any questions?

**MW:**

No. I think just to summarize, some of the big take-homes here is that both asynchronous and synchronous learning can be hugely beneficial and highly effective. I think it's at the teacher's discretion to identify what works for them, where their personal strengths are, and what fits the context of the classroom. And to really just be open to doing things differently, to developing their skillset as an instructor. Because there really is no inherent superiority to either asynchronous or synchronous learning. It's all about how you as an instructor choose to use them.

**JS:**

I like that, thanks. That's good. I like that balanced approach and I like the idea [of] finding the advantages of each or using them in to their advantage. That gets back to the idea we've been talking about in this course, about context and about finding the right methods, or the right materials or whatever it might be, that meet those different contexts we have to deal with. So what you're saying really fits into that nicely. Good. So thanks for that. We have time for questions. Does anyone in the room have a question for McLennon? This is your chance to ask your question.

**MW:**

I'm an open book.

**JS:**

Bill, you have a question. Go ahead.

**JS:**

We can't hear you, Bill, I don't know if you've unmuted your microphone.

**Bill Najah:**

Sorry about that. I asked my question already.

**JS:**

Well, ask it again.

**BN:**

In terms of inclusion and equity, did you find in your research which method benefits more socioeconomically disadvantaged groups?

**MW:**

No. In the research I was looking at, that might be something I've overlooked. Thanks for bringing that up. No, I can't say that that's something I stumbled across a lot. Do you have some intuitions, Bill?

**BN:**

I was thinking [that] disadvantaged groups probably would suffer if it's in a synchronous environment, because they have to keep up with the technology, with lots of things; even the location [and the] space. And asynchronous would benefit them more. But that's just my thought.

**MW:**

I could imagine that would play into it for sure. So, maybe in an asynchronous learning environment, [learners] have the time to digest, to maybe seek other resources that might be able to help them in navigating the information. Whereas, in synchronous, everything's on the fly; there's not really the chance to press the pause button. But that's a really interesting point you brought up there. I'd have to do a little bit more reading to really think about the interaction there. Dr. Skidmore, do you have any insights there?

**JS:**

I'm thinking about that, too. And I am wondering about that. My basic approach to that is [that] we have to be mindful of any approach we take in teaching and learning [and whether that approach would] have an adverse impact on certain groups of people or certain kinds of learners. Maybe from the learning perspective, [for example] if we do a lot of oral stuff and the person is hard of hearing, that's going to be difficult. But then for that socioeconomic question, [with] anything that involves technology [or] equipment, it's easier to do these kinds of things when you're in a room by yourself as opposed to in a room you're sharing with people; or [any other] kinds of conditions. We have to take those into account. That's never a reason not to try to do something – but we have to be aware that that can be an issue.

**MW:**

[inaudible] compromises to even be flexible in how students engage with the synchronous or asynchronous elements of a course.

**JS:**

That's the whole notion behind Universal Design for Learning. Can you create those kinds of options, those flexibilities? Can you build it into your design so that they can respond? So that's one thing with synchronous elements And, [for example] the University of Waterloo has been very clear on that: if you're going to have a synchronous element in your course, it has to be recorded so that those who can't attend can access that information. And also you can't require that they attend that synchronous session because that could adversely affect them. If we had a student in China right now, it'd be probably 2 in the morning; that's an adverse effect.

**JS:**

We have another question in the chat: so it sounds like what you're saying about asynchronous being great in covering the meat of the course means you can run a flipped classroom online or in-person, which is cool. In my experience, this fits a lot better in an ongoing course than for one-off workshop-type events. Do you think, in this COVID world, there is a way to run a flipped classroom asynchronously? And just for everyone who's listening, a flipped classroom is the notion that instead of [having] the prof at the front of the class spewing pearls of wisdom to the youngsters in the classroom below, we flip it. Meaning that students don't come to the classroom to do the learning. Students have done work prior to coming to the classroom, prior to coming to that learning situation – [through] readings and what have you – and then, in the class, it's a more active kind of exchange and [they're] working on the material that they've already had some contact with.

**MW:**

Yeah, I do think you could do a flipped classroom asynchronously. I think [you can do that] through things such as discussion boards or Teams; you have means there of giving students the ability to share their work, their ideas, and to interact with one another [and] with the instructor in a flipped manner rather than having the instructor largely disseminating information and students just [packing] it away. I think, if you are going to approach it like that, you need to have an instructor who is dedicated towards curating that kind of experience pretty closely or maybe guiding some the flipped elements of the class. Because sometimes I think it may be more difficult to stimulate some students in [terms of] engagement and involvement in a flipped asynchronous setting. That's my intuition. Dr. Skidmore?

**JS:**

I would agree, I think. One thing I've always thought about online learning generally is that online learning really forces more flipped-ness. I don't really like the term flipped classroom, to

be honest. I've talked in our course in the past about how we're always circling back on things. Learning is a kind of a circular thing where you deal with it once, then you go away from that idea, then you come back to it for some reason, then you go away from it, and then you come back to it again. That's natural. And flipped learning is kind of like that. You deal with it on in one instance, away from the classroom, then you come into the classroom and you deal with it again in a new fashion. Online learning kind of lends itself to that in a way. But every kind of learning does that. If you're a lecturer [and you think] "I want to lecture my courses; I'm going to stand up front and I'm going to lecture on things," you still don't do that without assigning readings to the students. And as you're lecturing, you're hoping that the students have done the readings because then [the] lectures will have even more impact on them.

**MW:**

Oh boy, is that a hope.

**JS:**

That's a hope. But that's flipped learning in a way. These "eduterms" – there's something about them. But that concept really is part of online learning. Because the thing about online learning is that, unless your synchronous learning is just a replication of a three-hour lecture [for example], so if you have any kinds of combinations other than the full-on synchronous, [then the classroom] is going to be flipped. Because it's basically independent learning, where the instructor then takes on more of that guide role, more of that facilitation role. Still instructing, still teaching, but also doing a lot more of the facilitation: "let's get together, we'll get together at this time and we'll do these activities and I'll help you with this or that." And to me, that's an ideal approach to education – and that's just me speaking – to have the educator [becoming] a facilitator as opposed to [an] instructor.

**JS:**

[McLennon], you're taking a three-hour [lecture course this term]. What do you see in terms of the positives [and] the negatives [of that]?

**MW:**

We have a strong sense of community insofar as we're all in this torturous three-hour experience together. But, yeah, it does foster a sense of community; we are developing relationships between one another. In that period, we do have tidbits of sharing – that is, we

hear from each other, we stimulate ideas, we discuss ideas. In some cases, we've developed full-blown ideas for studies. So I think that's a wonderful opportunity.

**JS:**

That's great.

**MW:**

But could all those positives still be done in a better way if it was three one-hour classes a week rather than one long meeting a week? I think so. So I think, really, the length is maybe one of the negative aspects.

**JS:**

That's a graduate seminar, I'm assuming?

**MW:**

It is.

**JS:**

What's the size of the class? How many students?

**MW:**

I would say probably around 20.

**JS:**

Okay. And the Zoom fatigue, is that an issue for people?

**MW:**

Absolutely. I mentioned earlier one of the studies I was looking at [which] talked about how, throughout a lecture, you have interspersed tasks to try and maintain student attention. We have very naturalistically fallen into a pattern of "we can only talk for a maximum of a half hour

before we need to do a breakout activity, because that's how we need to sustain our attention."
We have absolute Zoom fatigue. And I've written off doing any work following a Zoom because
it's just an energetically expensive experience.

**JS:**

Interesting. So there are always breakout rooms. So it's not three hours of [having the entire]
group together and then [you] go off [and] work on something together and come back to the
group?

**MW:**

Yeah, we formed kind of a mutiny and said [that] we demand breakout groups because we need
that kind of attention.

**JS:**

I think that's a good thing. Especially at the graduate level, where we're [more] colleagues [than]
instructor-students.

**MW:**

Let me let me clarify. I am being a little facetious. The professor is doing wonderful job. And I
think most professors, even when they do end up executing a course like this, their intentions
are nothing but good. I think it's probably their lack of experience teaching in an online
environment that leads them to fall back on these kinds of habits.

**JS:**

Of course. And that's no criticism of the instructors; we have to be careful about that. We're all
kind of feeling our way through the dark here a little bit. And so [we] try and see how things
work.

**JS:**

Let's have one final question and we'll call it a day. And this is from Yu: "I find students who
cannot attend a synchronous meeting are somewhat disadvantaged, considering they cannot
participate in the discussion for whatever reasons – even if the lecture is recorded, they haven't

participated. And those students may become somewhat isolated then from the rest of the class. If that's the case, what do you think an instructor can do to help in this situation?"

**MW:**

That's a really good point. Of course, you want to be able to facilitate a feeling of community, and you wouldn't want to systematically leave out a student who isn't able to attend those synchronous meetings. I think that highlights the importance of having alternative ways of building a sense of community in an asynchronous manner. So, in addition to a class-style synchronous meeting once a week or twice a week, it might be beneficial to also have built into the structure of the course some kind of discussion board-like interactions that are meant to facilitate a personal connection between students using an asynchronous method, if that makes sense.

**JS:**

It does. It's a humane approach: how do we help students be connected with each other. If that helps them with their learning or if it just makes that learning experience better or more human, not cold or alienating, then that's to the good. Not every class, not every experience is going to be the best thing you've ever had. That's unrealistic. But we want to always be mindful of that so that, if we can do things to make that more humane, to use that word, then I think that's a good thing.

**MW:**

I think there are some creative things you can do to asynchronously foster a sense of community as well. For the course I'm TAing right now [for example], one of the first assignments was students had to upload an introduction video where they talk a little bit about themselves and their interests and something that they're hoping to get out of the course. Now, on paper, this sounds like an icebreaker, which I'm sure a lot of people would find to be dreadful. But really, I think it was well received by students. And now I can put faces to names, I can see the individual characteristics of a lot of these students, and I imagine that that really does a world of good in fostering this community in the class.

**JS:**

Did any students choose not to participate?

**MW:**

Shockingly, only one student out of a class of 50 decided not to do this video. I was absolutely floored. I thought there would be a ton of students who would avoid it just out of discomfort. And again, if students were uncomfortable with this kind of assignment, I would always have something in place for them.

**JS:**

You want to have an alternative, yeah.

**MW:**

I was really astounded that so many students were willing to do this and were enthusiastic about doing this. Also, I was blown away by how creative the students were in sharing about themselves. And their video editing skills put me to shame.

**JS:**

The digital age. The digital generation. That's very interesting because there's a sense that one way to help students feel better about their learning experiences is to give them more creative options. So not just term papers or just tests, the standard way of assessing, [but instead] give them more creative outlets. Then they can bring their creative energy to bear on the content of the course. And that can be really productive. It's great that that worked well in the course you're TAing.

**JS:**

McLennon, thank you. That's been a wonderful discussion. Thanks very much for looking into that, digging deeply into the whole notion of asynchronous versus synchronous, and just making us realize that there's no need for it to be one or the other; it's not a zero-sum game and we can work with both of these methods. So thank you very much.

**MW**:

It was a great experience. Thanks.