



**MACQUARIE**  
University  
SYDNEY · AUSTRALIA

# Blended Synchronous Teaching at Macquarie University

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16 Aug 2022

# BlendSync Research Project



Research informed practice and ideas of what can be done...

A/Prof Matt Bower MQ:

- Seven cases selected from universities across Australia to represent a broad range of technologies and discipline areas
- Data collected for each case study:
  - pre-observation teacher overview of the case
  - pre-observation teacher interviews
  - video and screen recording of the blended synchronous learning lessons
  - researcher observations of the lessons
  - post-observation student survey responses
  - post-observation student focus group interviews
  - post-observation teacher interviews



Project website <http://blendsync.org>



# Blended Synchronous Learning Design Framework



<b>Presage</b>	<i>Pedagogy</i> <ul style="list-style-type: none"> <li>• Clearly define learning outcomes</li> <li>• Design for active learning</li> <li>• Determine whether to group remote with face-to-face students</li> <li>• Utilise general design principles</li> </ul>	<i>Technology</i> <ul style="list-style-type: none"> <li>• Match technologies to lesson requirements (see MRSTCF in Chapter 4)</li> <li>• Setup and test the technology in advance</li> </ul>	<i>Logistic/setup</i> <ul style="list-style-type: none"> <li>• Be highly organised in advance</li> <li>• Solicit the right institutional support</li> <li>• Prepare students</li> <li>• Prepare self</li> <li>• Establish a learning community</li> </ul>
<b>Process</b>	<i>Pedagogy</i> <ul style="list-style-type: none"> <li>• Encourage regular student contribution</li> <li>• Distribute attention between remote and face-to-face students</li> <li>• Identify the focus of learning and discussion</li> <li>• Avoid duplication of explanations</li> <li>• Circulate amongst groups</li> <li>• Draw upon existing pedagogical knowledge</li> <li>• Be flexible, adaptive and composed</li> </ul>	<i>Technology</i> <ul style="list-style-type: none"> <li>• Know how to use (and troubleshoot) the technologies</li> <li>• Appropriately utilise audio-visual modalities</li> <li>• Ensure students have correct permissions</li> <li>• Advise students how to use the technology</li> <li>• Use tablet devices to facilitate visual input if required</li> </ul>	<i>Logistic/setup</i> <ul style="list-style-type: none"> <li>• Start lessons 10 mins early for technology testing</li> <li>• Apply tactics to work with text chat contributions</li> <li>• Login to a second computer (to see student view)</li> <li>• Seek teaching assistance where possible and desirable</li> </ul>
<b>Product (Outcomes)</b>	<ul style="list-style-type: none"> <li>• More active learning (remote and face-to-face)</li> <li>• Enhanced sense of community (through co-presence)</li> <li>• More flexible access to learning</li> </ul> <p style="text-align: center;">LEADS TO</p> <ul style="list-style-type: none"> <li>• Increased student satisfaction</li> </ul>		

# Blend Sync tools @ MQ

## Zoom web conferencing:

Works for smaller active learning/  
discussion classes (limit of 200  
for breakouts).

Polls, audio/video/text chat,  
breakout rooms, screen/fileshare,  
whiteboard etc.

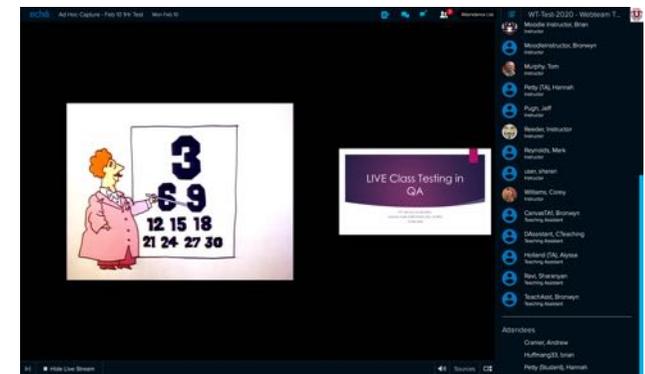


## Echo360 Lecture streaming:

Suits large class lecture style  
“interactive presentations”.

Polls and Q&A chat.

But - No small group tools.





# Student online competencies



## Advice:

- Don't assume they are 'digital natives' with learning technologies.
  - If students lack prerequisite technology collaboration skills it can cause difficulties in the lesson
  - Do a welcome/getting started activity to familiarise students with the technology.
- Give advance warning to students of what/how/when
- Use early part of semester to provide students with a basic understanding of the technology
- Encourage students complete pre-lesson activities so they can develop the required competencies

## Research findings:

- Both teachers and students indicated that students are able to quickly pick up the required technology skills when they are provided guidance.
- Students rarely self reported poor technology skills as a reason for inhibiting participation.

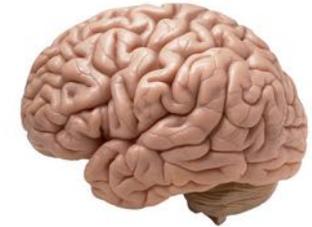


# Teacher cognitive load

Teachers reported a “mental drain”

Difficult to process text-chat while teaching

*“there needs to be two concurrent lines of pedagogical thinking happening at the same time, and in fact even more because you have to relate how the remote and face to face are going to work together”*



## Strategies for managing:

- Keeping focus in one environment “*the focus of student attention during the lesson is very definitely in the virtual environment*”
- Use the students themselves to help monitor the text chat.
- Providing student centred tasks gives the teachers more time to respond to individuals.
- Plan ahead, add more pauses, allow more time, give extra explicit directions.





# Pedagogical recommendations (Tips from teachers for teachers)



1. Be highly prepared and organised in advance
2. Create time for student contribution (within environment and lesson)
3. Match technologies to requirements of lessons (e.g. whiteboards for visual creation, voting for factual knowledge)
4. Allow for the fact that activities may take more time
5. Create an open and cohesive learning environment (e.g. through tone, community building activities)
6. Distribute teacher/class attention between remote and F2F participants
7. Encourage regular participation from both remote and F2F learners – plan regular check-ins.
8. Be flexible, adaptable and composed (and honest – we are all learning!)





# Pedagogical recommendations (Tips from teachers for teachers)



9. Regular pedagogy counts:
  - Clear explanations and instructions
  - Relevant examples
  - Authentic tasks
  - Directing questions to individuals
  - Scaffolding thinking
  - Conversational approaches
  - Time constraints on tasks
10. Provocation: what is the pedagogical rationale for your design?



# Tips: Small class teaching

- Put all materials/exercises on iLearn before the session
- Using Zoom –
  - Use ‘share desktop’ then project that screen to the room. Or...
  - Use laptop to host in Zoom with ‘share desktop’ AND login to zoom session on Lectern PC and project that screen to the room.
  - Online students join Zoom, on-campus students see projected screen.
- Use a microphone (depends on room config) e.g.
  - Zoom-enabled rooms: Radio/lapel mic OR stay near lectern mic.
  - Standard rooms: use a USB headset / mic for a laptop OR use a mobile device to join Zoom as a mic.
- Submit a OneHelp ticket to book in advance: A Logitech USB ‘meetup’ mic/webcam/speaker bar – first come/first serve.
- Ask your faculty to borrow a laptop.





# Tips: Interaction

- Re-usable polls in Zoom or Echo.
  1. In zoom setup before session - Use generic options in the poll “Your response: a, b, c”
  2. Put actual questions and options on your slides.  
Means you can easily re-use the same poll.
- Use text chat
  - for comments.
  - for questions – ask students to prefix chat with “Q:” to easily identify.
- You may need to repeat questions/ responses using your voice/mic to ensure both groups hear.





## Tips: Small group collaboration



- Place material/activity sheets etc on iLearn before the lesson.
- Ensure students can access and edit templates/worksheets.
- Live documents: Google doc / Office 365 for collaborative work
  - One doc per group, or
  - One doc for all (depends on the task!).
  - Online students can edit and show.
  - On-campus students could do the same.

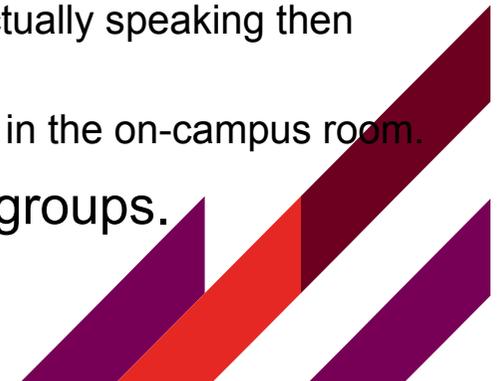




# Tips: Small group discussions



1. Online students in Zoom – use breakout rooms.
  2. On campus students – face to face (with distancing).
  3. Then have a group rep to share across modes to whole class.
- To connect audio – options:
    - When online students are speaking: Put room mic near laptop speaker so on-campus students can hear those online (laptop mic to be muted at that time).
    - When on campus students speaking:
      - Mic for in-room students to speak into Zoom - may need to walk closer to students holding mic OR
      - Have on-campus students use a phone or laptop to join zoom to use the device mic.
    - Mute mics/speakers as appropriate to avoid cross-talk.
      - Rule of thumb – only one active mic at a time. If you are not actually speaking then mute your mic.
      - May need to mute the room loudspeakers if a device mic is on in the on-campus room.
  - Best to avoid ‘whole class’ discussions – go via small groups.



# Audio versus typing for groups



Audio	Typing
<ul style="list-style-type: none"><li>+ Rapid contribution</li><li>+ Enables more extensive contribution</li><li>+ Conveys tone</li><li>+ Greater sense of co-presence</li><li>- Only one contributor at a time</li><li>- More complex to test and setup</li><li>- Many ways it can go wrong</li><li>- One-to-one recording replay speed</li></ul>	<ul style="list-style-type: none"><li>- Slower contribution</li><li>- “Single line thoughts”</li><li>- Only conveys words</li><li>- More anonymous</li><li>+ Multiple simultaneous contributions</li><li>+ Simple to use</li><li>+ Reliable</li><li>+ Easier to process in retrospect</li></ul>

Finding: Some students felt audio and text working together simultaneously could result in fragmented (disjointed) conversation that was harder to follow.

Strategy:

Direct focus for contribution to either audio or text



# Grouping students

## a) Mixed F2F with remote

- + F2F can help remote know what is happening in the class
- + All collaborating via technology “levels the playing field” for remote students
- + Increases sense of co-presence
- Can be complex to communicate across modes for group work.

## b) F2F together, remote together

- + F2F can communicate naturally without needing to operate technology
- + Easier for teacher to know how to divide their attention
- + Less complex for students to communicate.
- Divides the groups.

- Organising groups can take time:
  - Note: if all are in the platform then ‘random’ grouping will most likely place face-to-face with remote – in zoom you can move students between groups.
  - OR – pre-assign groups in Zoom – requires meeting to be limited to MQ OneID logins.
- Ensuring students have audio for group work is useful to enable more effective collaboration and coordination.





# Technology tactics

1. Prior setup of technology, audio capture and broadcast in the room – check venue and equipment well before the session.
2. Put lesson content/instructions/activities/tasks online before lesson
3. Remember to bring power adapters and HDMI adapters if using your own devices.
4. Start sessions at 10 minutes early for system tests
5. Login to a second computer/device as a student to see their view
6. Invite remote students to contribute at regular intervals – look periodically for questions/comments.
7. Remote text contributions:
  - Have students prepend “Q:” to distinguish questions
  - Ask distance students to indicate whether they have questions
8. Try to develop basic technology troubleshooting abilities (or have good tech support)
9. Ensure students have correct permissions
10. Use tablet devices to facilitate visual input (e.g. mathematical notation for whiteboards)





# Macquarie University rooms



The following provides a set of “Blend Sync Quick Start Setup” guides for:

1. Standard rooms\* + your device/s
2. Standard rooms\* + USB Logitech Meetup bar
3. Rooms with Zoom enabled (i.e. the room microphones/camera and sound works on the Lectern PC in Zoom)

Plus – additional advice and caveats.

\* Standard room = room that has NOT been zoom enabled for Blend Sync on the Lectern PC. The room microphones/camera/sound is not connected to Zoom. Follow the provided guides for a work-around.



# Blend Sync Quick Start Setup

## Method 1: standard rooms\* + **your device/s**



1. Login to Lectern PC (if first time it may take 5min).
2. Open content file(s) on the Lectern PC. e.g. Powerpoint slides.
3. Join Zoom meeting on the Lectern PC.
  - Join Zoom a second time on another device. The second device will serve as the camera and microphone so that off-campus students in Zoom can see and hear you.
  - The second device also shows the student's view.
  - Use Zoom cloud recording – this will automatically copy over to the Echo360 library.
  - Use “Screen share” of the Lectern PC desktop / content into Zoom.
4. Use AV touch panel to show the Lectern PC desktop on the room projector (that includes the Zoom window showing the content).

Note: Room wireless microphones and speakers are not connected to Zoom so students in Zoom wont hear/see these sources.

See also “additional advice and caveats”.

\* Assumes the room is not zoom enabled for blend sync via the Lectern PC.



# Blend Sync Quick Start Setup

## Method 2: standard rooms\* + Logitech bar



1. Book a “Logitech Meetup conference bar” (camera/mic/speakers) with AVIT via One Help ticket well in advance (first come, first serve). You may need to collect/return it.
2. Login to Lectern PC (first time will take 5min).
3. Open content file(s) on the Lectern PC. e.g. Powerpoint slides.
4. Connect the Logitech meet up bar to PC using the USB cable – this will allow off-campus students in Zoom to see and hear you.
5. Join Zoom meeting on the Lectern PC.
  - Select “...Logitech...” device for camera and microphone in Zoom.
  - Use Zoom cloud recording – this will automatically copy over to the Echo360 library.
  - Use “Screen share” of Lectern PC desktop / content into Zoom.
6. Use AV touch panel to show the Lectern PC desktop on the room projector. (includes the Zoom window showing the content).

Note: The room wireless microphones and speakers are not connected to Zoom therefore students in Zoom wont hear/see these sources.

See also “additional advice and caveats”.

\* Assumes the room is not zoom enabled for blend sync via the Lectern PC.



# Blend Sync Quick Start Setup

## Method 3: rooms with **Zoom enabled\***.



1. Login to Lectern PC (if first time it may take 5min).
2. Open content file(s) on the Lectern PC. e.g. Powerpoint slides.
3. Join Zoom meeting on the Lectern PC.
  - Ensure the room camera and microphone sources are selected in Zoom.
  - Use Zoom cloud recording – this will automatically copy over to the Echo360 library.
  - Use “Screen share” of the Lectern PC desktop / content into Zoom.
4. Use AV touch panel to show the lectern PC desktop on the room projector. (includes the Zoom window showing the content).

Note: Room wireless microphones and speakers are now connected to Zoom so students in Zoom will be able hear/see these sources directly in Zoom.

See also “additional advice and caveats”.

1CC User guide

<https://teche.mq.edu.au/2022/03/central-courtyard-upgraded-for-zoom-teaching/>

\* For rooms that are zoom enabled for blend sync via the lectern PC.



# Blend Sync Quick Start Setup

## Additional advice and caveats



**A mobile slide ‘clicker’ device:** allows you to move about the room while being able to change slides.

**Join Zoom a second time:** use another device to see the student’s view or use it to share further content, or as a (second) camera or as a (second) microphone (be careful about audio feedback loops).

**Presentation flexibility:** with other devices joined to Zoom - you could present from another device, or use a smart phone as a mobile mic and the lectern PC to display the Zoom window on the projector screen.

**External microphone or camera:** Plugging into the Lectern PC a USB microphone or USB webcam will allow it to be selected in Zoom.

**Workaround for ceiling camera use into Zoom** (in *non-zoom* enabled rooms): To show a room ceiling camera in Zoom - the room camera must be showing on the Lectern PC screen, then use Zoom ‘screen share’ to allow off-campus students to view it.

**Zoom simultaneous login limits:** Officially - you can be signed in to Zoom on one computer, one tablet, and one phone at a time. If you sign into an additional device while logged into another device *of the same type*, you will be logged out automatically on the first device. (having said that – in Feb 2022 I have been able to sign into a Zoom meeting as host/co-host with 4 laptops and 2 phones on my MQ staff account - but “your mileage may vary”.)

**Avoid audio feedback loops** in a classroom:

- Rule of thumb for microphones:  
**Only have a single mic active at any one time.**
- Rule of thumb for loud speakers:  
**Only have a single set of speakers active at any one time.**
- Reduce the speaker volume to reduce the chance of audio feedback.
- If joining Zoom with an extra device to serve as a microphone – may need to:
  - a) mute/reduce volume of the room speaker using the AV touch panel and/or.
  - b) mute the device speaker in the Zoom app.



# Where to find out more...



MQ Teche blog post and guide on Blend Sync:

<https://teche.mq.edu.au/2020/07/returning-to-campus-small-group-classes-with-an-online-option/>

MQ resources on Blend Sync

<https://teche.mq.edu.au/teachingdevelopment/student-learning-and-support/> [Note: need to click sections > 'Planning & facilitating student learning' > 'Blended Synchronous Teaching'.]

Building 1CC: Get up to speed / Tech training / FAQs:

<https://teche.mq.edu.au/2022/02/get-up-to-speed-on-the-tech-in-1cc-teaching-spaces/>

Zoom in 1CC

<https://teche.mq.edu.au/2022/03/central-courtyard-upgraded-for-zoom-teaching/>

Zoom guides (general): <https://staff.mq.edu.au/teach/technologies-and-tools/zoom>

Zoom Teche articles <https://teche.mq.edu.au/?s=zoom>

Blend Sync Project website (Matt Bower): <http://blendsync.org> +

Summary of case studies <https://www.youtube.com/watch?v=4McowyXgZUZ0>

Ask technical support from:

- Your faculty L&T group
- iLearn help
- AV services (for in-room equipment)
- OneHelp ticket to borrow the “Logitech meetup” bar or other audio equipment (e.g. extra mic for rooms). – do it well in advance.





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# Questions?

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