



Blended Synchronous Teaching at Macquarie University

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The current problem

Under COVID students may not be able or comfortable to attend face-to-face classes and there may be limits to the number of attendees in classes

Real-time interaction and collaboration are often considered essential in order for students to achieve learning outcomes:

- asking questions
- discussions
- collaborative creation
- social connections

The current problem

Asynchronous online support for students has matured in recent years e.g. iLearn:

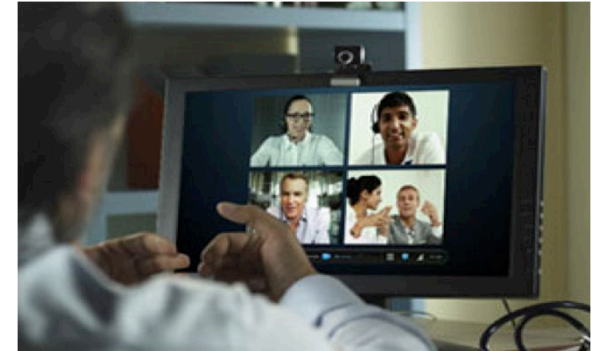
- Online subject outlines and study guides
- Online forums – when actively facilitated!
- Lecture recording

However, teaching modes have tended to be split into online cohorts or face to face cohorts

Under COVID there is a need to be dynamic and cater for rapid changes. e.g. On-campus enrolled students shifting between modes

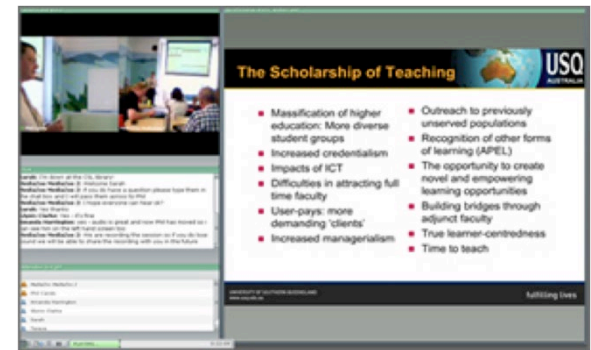
Opportunities

Use media-rich synchronous technologies to allow real-time learning experiences for distributed students.



Technologies of focus today:

- Zoom web conferencing
- Echo Lecture streaming



The Scholarship of Teaching

- Massification of higher education: More diverse student groups
- Increased credentialism
- Impacts of ICT
- Difficulties in attracting full-time faculty
- User-pays: more demanding 'clients'
- Increased managerialism
- Outreach to previously unserved populations
- Recognition of other forms of learning (APEL)
- The opportunity to create novel and empowering learning opportunities
- Building bridges through adjunct faculty
- True learner-centredness
- Time to teach

BlendSync Project

- 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



Learning Design example

Develop investment understanding
at Macquarie University
(collaborative evaluation task)

On-campus
students in PC lab

Teacher logs in and
presents via Zoom

Shared screen

At MQ we now use
Zoom instead!

Teacher's
screen
projected

Text chat

Students
can join
Zoom too

Response
areas

Face-to-face student view

Remote student view

Learning Design example

Develop microscopic tissue analysis and interpretation skills
at Charles Sturt University

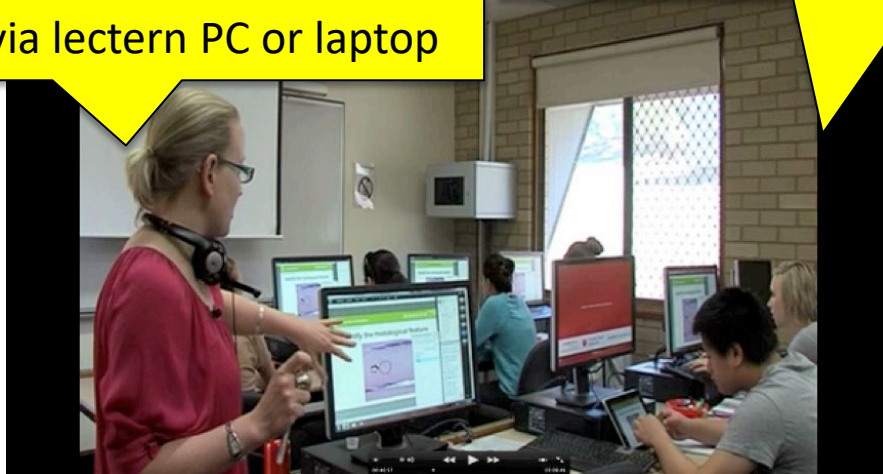
(group questioning)

On-campus
students in PC lab

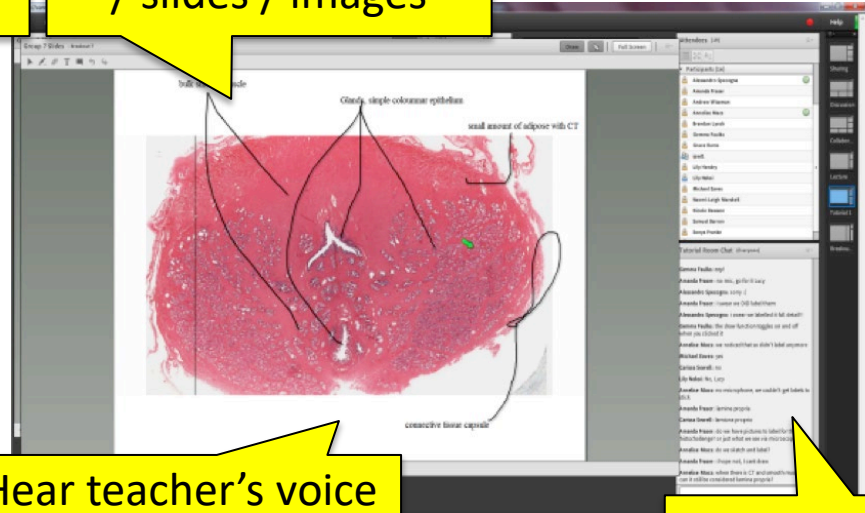
Students: PC or laptops
–text chat via Zoom

Shared screen / doc
/ slides / images

Teacher: USB headset
via lectern PC or laptop



Face-to-face student view



Hear teacher's voice

Text chat

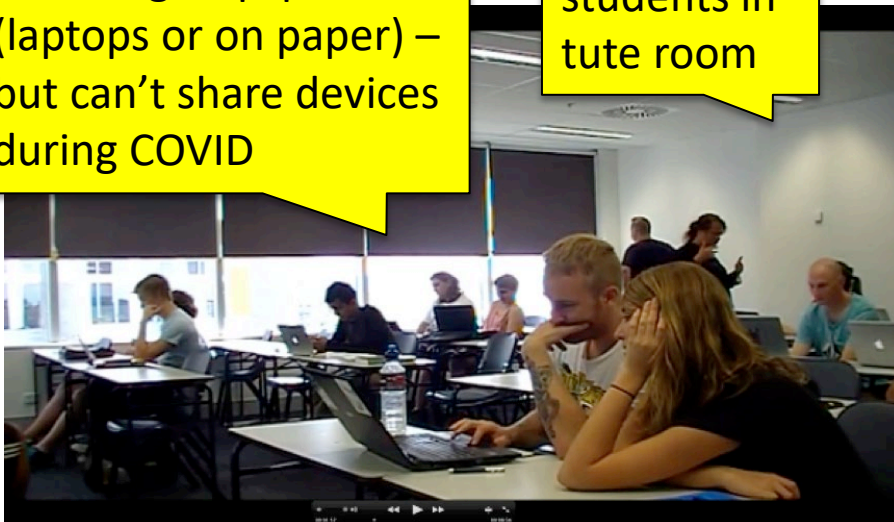
Remote student view

Learning Design example

Participation in statistics tutorials at Southern Cross University (collaborative problem solving)

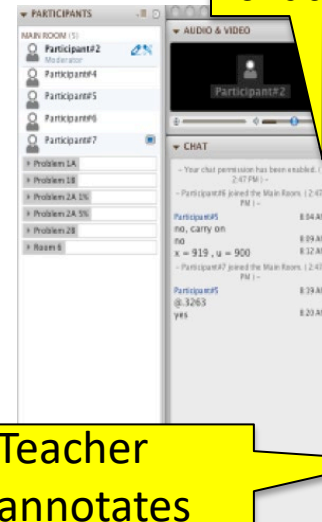
On-campus students
work in group/pairs
(laptops or on paper) –
but can't share devices
during COVID

On-campus
students in
tute room

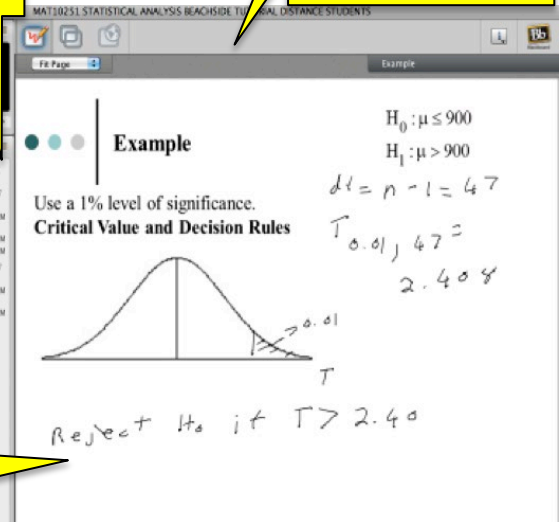


Face-to-face student view

Text
chat



Teacher
annotates
via tablet



Group/pair
work in
breakouts

Remote student view

Learning Design example

Enable presence in sexology classes
at Curtin University

Also suits lecture halls
Slides, polls, Q&A

(lecture discussions)

At MQ we will use Echo360
or Zoom instead!




Face-to-face student view



Remote student view

Brief video overview of cases



**Blended
Synchronous
Learning**
Uniting on-campus and distributed learners using rich-media real-time collaboration tools

Case Studies Brief Overview

For more information see the BlendSync website at:
<http://blendsync.org>

<https://www.youtube.com/watch?v=4McwyxgZUZ0>

Cross Case Analysis Results

Student perceptions +

Enables connections: *“Enhances a shared learning experience between all students”*

Engagement outweighing tech issues: *“Although there are occasional hiccups, it’s far more engaging as a DE student to be able to ‘attend’ class”*

Expedience of synchronicity: *“I’m so much more inclined to whack my hand up and go listen yeah I need help with this I’ve got no idea what you’re talking about whatsoever as opposed to drafting a 10 page email going what’s going on here”*

Flexibility of access: *“I’m an internal student and was unable to attend a tutorial one day as my kids were sick so I did it online whilst I was minding my kids in the comfort of my home”*

Active Learning: *“My other classes don’t allow the amount of learning that this class does. We mainly listen to the teacher talk where as we are applying our knowledge in this class”*



Student perceptions –

- *“I only find it annoying if the teacher has to repeat questions asked by the face to face students so the online students can hear”* (F2F student)
- Duplication of instructions at times (remote vs F2F directions)
- Unreliability of the technology noted by students
- Equity was an issue for some students in some cases

Student online competencies



- If students lack prerequisite technology collaboration skills it can cause difficulties in the lesson
- Give advance warning to students of what/how/when
- Often early part of semester involves providing students with a basic understanding of the technology
- Encourage students complete pre-lesson activities so they can develop the required competencies
- Both teachers and students indicated that students are able to quickly pickup the required technology skills
- Students rarely self reported poor technology skills as a reason for inhibiting participation

Technology – constraints

Network and software issues

Difficulty knowing the remote student view

Knowing when to contribute

Technology issues :

- Teacher audio not turned on
- Latency on whiteboard
- Problem with breakout rooms
- Student access to online spaces
- Microphone issues
- Slides not progressing
- Software crashes
- Audio feedback loops





Technology tactics

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

Audio versus typing

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

- Some students felt audio and text working together could result in fragmented (disjointed) conversation that was hard to follow
- Strategy: direct focus for contribution to either audio or text
- Many students comfortable with multiple channels of information

Grouping

Mixed F2F with remote	F2F together, remote together
<ul style="list-style-type: none">+ 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	<ul style="list-style-type: none">+ F2F can communicate naturally without needing to operate technology+ Easier for teacher to know how to divide their attention

- Organising groups can take considerable 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.
- Ensuring students have audio for group work is useful to enable more effective collaboration and coordination.

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

Pedagogical recommendations (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 attention between remote and F2F participants
7. Encourage regular participation from both remote and F2F learners
8. Be flexible, adaptable and composed



Pedagogical recommendations (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?

Blended Synchronous Learning Design Framework

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

Tips: Small class teaching

- 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 radio mic or USB headset when speaking (so online students can hear). OR stay near lectern mic.
- Submit a OneHelp ticket to book in advance: A Logitech USB ‘meetup’ mic/webcam/speaker bar is available.
- Ask your faculty to borrow a laptop.
- Put all materials/exercises on iLearn before the session

Tips: Small group discussions

- Online students in Zoom – use breakout rooms.
- On campus students – face to face (with distancing).
- Then have some groups share across modes.
- 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.
 - 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.
 - Mute any room loudspeakers if a mic in on in the on-campus room.
- Best to avoid ‘whole class’ discussions – go via groups.

Tips: Small group work

- Place material/activity sheets etc on iLearn before the lesson.
- Use google doc 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: Interaction / Lectures

- 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.

Concluding comments

Blended Synchronous Learning - can unite on-campus and distributed learners using media-rich real-time collaboration tools.

But you need to be prepared and *practice!*

If there is more MQ can to to help – let us know.

Where to find out more...

Project website: <http://blendsync.org>

Teche blog post and guide:

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

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 lecture rooms). – do it well in advance.

Blended Synchronous Learning Handbook



Note: specific software used in examples not applicable but the functionality/design patterns is present work for tools at MQ: Zoom and Echo360 live stream.

Ch 1: Overview

Ch 2: Background Literature and Context

Ch 3: The Blended Synchronous Learning Scoping Study

Ch 4: Rich-Media Synchronous Learning Technology Capabilities

Ch 5: Overview of Case Study Reports

Ch 6: Case Study 1 – Web Conferencing to Develop Investment Understanding

Ch 7: Case Study 2 – Room-based Video Conferencing to Develop Understanding of Healthcare Quality Improvement Approaches

Ch 8: Case Study 3 – Web Conferencing to Support Microscopic Tissue Analysis

Ch 9: Case Study 4 – Web Conferencing For Participation in Statistics Tutorials

Ch 10: Case Study 5 – Virtual Worlds to Facilitate Chinese Language Learning

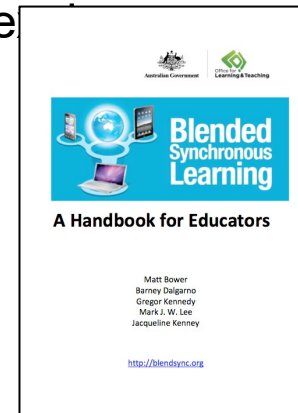
Ch 11: Case Study 6 – Web Conferencing to Enable Presence in Se

Ch 12: Case Study 7 – Virtual Worlds For Teacher Education

Ch 13: Cross Case Analysis

Ch 14: Recommendations and Future Directions

<http://blendsync.org/handbook>



Questions?

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