Synchronous Online Teaching Technologies

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Introduction/Background

The acts of teaching is always evolving and challenged with the advancements in information and communications technologies. Unforeseen circumstances such as the COVID-19 pandemic have particularly influenced the role and synchronous teaching tools have been brought to the forefront as a result of disasters and other calamities. This has thrust many teachers into this unfamiliar space where they are challenged to adapt to new ways of teaching and promoting their presence in teaching a course online. Online synchronous teaching technologies can help in creating cognitive, social and teaching presence.

The purpose of this guide is to provide tips and guidance on the adoption and use of synchronous teaching technologies in order to help teachers design productive learning experiences for students.

Synchronous teaching is where the teacher is present at the same time as the learner(s) ("Take your teaching online", 2020). Synchronous teaching technologies are those that help you achieve those outcomes. Prominent among these technologies include Zoom, Big Blue Button, Google Meet, Microsoft Teams, Moodle chat and many more.

The adoption of synchronous teaching technologies, such as, video conferencing and live chat or instant messaging tools enables learners to ask questions and also receive a response in real time. The teacher's role in online synchronous teaching might not be very different from their role in the face-to-face environment. However, teaching synchronously online will require some new skills to be developed, for example the use of technology, e-facilitation, online social skills, designing learning experiences and others.

This guide focuses on the use of two particular conferencing technologies used specifically for teaching, Zoom and Big Blue Button (BBB).

Synchronous Teaching Tools

Synchronous teaching tools available at The University of the South Pacific (USP) are Zoom and Big Blue Button (BBB). These can be used for synchronous teaching and can help enhance the educational experience for distance learners. These tools allow teachers to virtually meet their students and encourage a collegial environment in the course when facilitating a tutorial. While teaching using these tools may likely complicate some of one's techniques for engaging

students and promoting collaboration, there are several ways to adapt them to an online environment.

Table 1 below outlines these technologies and how the different features can be utilized to enhance a student's learning experience.

Synchronous Teaching Tools	Feature and its impact on learning & teaching

Zoom	**Synchronous teaching** - Zoom allows for real time virtual presentation by a teacher. This feature allows the teacher to promote teaching presence in real time. Students can also join in from different locations and interact by posing questions and receiving responses in real time. **Recording feature** - Zoom allows the session to be recorded giving the learner the opportunity to engage with the content at a pace that is suitable to their learning; at the same time allowing them to construct and confirm meaning through sustained reflection. **Student Engagement -** Zoom has multiple features that encourages student engagement with each other, with the teacher, and the content**.** This encourages social interaction with each other as well as meaningful engagement with the content and the activities you design around the content. These features are:
	  a. Breakout rooms - allows for group work and collaboration;
	  b. Screen sharing - allows learner interaction with content;
	  c. Annotation features - engagement with the content.
	  d. Chat - instant messaging
	  e. Polling - allows for quick and easy survey, pre-test, etc.
	  f. Non-verbal feedback - gestures, emoji, etc. allows social interaction to take place without having to disturb ongoing teaching session.

BigBlueButton	The features of BBB are very similar to that of Zoom. However, BBB is embedded within the Learning Management System (LMS) at USP allowing users to set it up as and when they see fit.
Moodle Chat	Allows for instant messaging in real time.

Planning your educational experience

Learning how to use the tool is good but not good enough. Effective and efficient use of the tool requires careful design of its use. Before conducting an online synchronous session, a good amount of time and effort needs to be spent on planning the learning and teaching transactions. These transactions can be worthwhile and be more meaningful if they are designed and planned with the goal of enhancing the students learning experience.

The planning phase needs to take into consideration elements such as content, activities and how these will be presented, social presence and appropriate tools to bring about a meaningful learning experience for learners.

Use the following questions to guide you in planning your session:

- What do I want to do/achieve?
- What do I want my students to be able to do/achieve?
- How can I do this synchronously? Which synchronous conferencing tools can help?
- How will I use these technologies to orchestrate my teaching activities?
- How will I engage students in my session?
- How do I create a welcoming and safe environment online for my students?
- How do I nurture/foster affective relationships between participants and the instructor?
- How can I fully utilise the capabilities of the web conferencing tools available at USP?

A major consideration in the integration of any tool or technology in teaching and learning is how it serves to promote presence in the learning and teaching transaction. This includes not only teaching presence (which is often seen as the most important), but also cognitive and social presence. A higher degree of presence minimizes alienation, and boredom, and increases engagement and learning achievement.

The Community of Inquiry (COI) Framework offers a useful guide to help plan and also design productive learning experience. You need to consider the following:

1. **Planning for cognitive presence** - Your teaching session needs to be designed with goals that goes beyond content acquisition. Students need to be able to create/construct meaning through meaningful engagement opportunities. Most proponents of the COI framework refer to this type of learning as *enquiry based learning*. Your teaching session needs to have probing questions and activities built around the content to ensure that students actively engage with it and also engage with the community of learners to interrogate the content and make sense of it.

2. **Planning for social presence** - When planning your learning activity, ensure that students feel safe and are able to communicate freely in a trusting environment, having a sense of belonging to the community of learners. The online space can be lonely at

times for learners, ensure that there are opportunities for interaction and peer teaching amongst your learners.

3. **Planning for teaching presence -** this is the glue that holds all three facets of the COI framework together. This is where planning really matters as you will need to plan and design the learning experience, facilitate it and ensure that the cognitive and social processes are in sync and are complimenting each other.

More often than not, a lot of emphasis has been placed on teacher presence while the other two elements of the framework are ignored. This guide aims to bring a balance to your strategy, giving ample considerations to the three facets mentioned above.

Table 2 provides teaching tips, strategies, and **examples that can be adapted in your own scheduled synchronous sessions.**

The framing of the strategies are around the "Community of Inquiry Framework" that encourages:

- Creating Cognitive Presence;
- Creating Social Presence
- Creating Teaching Presence.

Table 2: Teaching Strategies for Online Synchronous Sessions

Community of Inquiry Framework Strategy	Virtual Synchronous Session		
	Before Session	**During Session**	**After Session**
Cognitive Presence	Let students know the topics and planned activities for each session in advance. This is so that they come to the session prepared. Ask students in advance if there is a topic or problem that they don't understand. You could plan your session to allow students to help their	Generate active participation and learning. Use the session not just to have a lecture but use the time to do some problem-solving and meaningful discussion based on the week's topic. Use the Zoom/ BBB features to elicit quick student responses, check for understanding, or get feedback through using the poll, annotation tools and small group	Create an activity or quiz to have students review the recorded video. This would allow them to re-engage the video. You would also see if they were paying attention. Whatever was discussed could be in a Mid-Semester Test or Final exam.

	peers to come up with solutions.	discussions using the break-out rooms.	
Social Presence	Let students know of the online synchronous sessions and "get-togethers" in advance. Send out friendly reminders through email and the "News & Announcements" forum. Let them know the rules beforehand. Advise students who live in the same place or area, they can share a laptop or tablet to join the session. They should advise you who will be sharing. This could create a sense of community in areas where students don't have access to computers or mobile phones. Get students to update their profile photo in Moodle and not of an animal or plant or flag.	Remind students of the rules during any online synchronous discussions. They are to be respectful. Get students to introduce themselves to each other. Most of them would never have the opportunity outside the session. Create these opportunities to interact. Get them to know how they are feeling using the emoticons. You will make students feel comfortable about sharing their feelings in the session. Encourage the webcam to be turned on in the beginning so that students can see you and each other. (Be mindful of bandwidth issues in the region.) Let students know you will be recording the session and they	Set up activities or group work that will enable them to continue engaging with each other and review the recorded video. Continue the interactions through asynchronous means such as the discussion forums.

		can access it for study purposes or if they have connectivity issues. If you have a large class use the break-out rooms sessions to have smaller group numbers. (Note break-out rooms may not be recorded so identify a student to be the minute taker and someone to report back to the main virtual classroom.)	
Teaching Presence.	Prepare your virtual workspace and activities that will be engaging and interactive, such as the poll, interactive whiteboard. Greet students when they join the session and to inform them to have their mics off. Send out reminders on the "News & Announcements" Forum about the session. This would be sent directly to students' email.	Be sure to always introduce yourself at the beginning of each session. Always be in control of the session by giving clear instructions and direction, particularly when you allow students to annotate or discuss a topic. It will be a disaster if you let students have free will over annotating or to discuss.	Let them know you can be contacted after the session through email, chat or the Q&A Forum. State your virtual working hours for chat and when you will respond to emails and forum posts. Through your observations and Moodle "Reports" identify where there needs to be interventions and follow-up where students are missing the sessions or not participating.

Glossary of Terms

Synchronous teaching: is where the teacher is present at the same time as the learner(s)

Community of Inquiry Framework: represents a process of creating a deep and meaningful (collaborative-constructivist) learning experience through the development of three interdependent elements – social, cognitive and teaching presence.

Zoom: a tool that combines cloud video conferencing, simple online meeting and group messaging into one easy-to-use platform.

BigBlueButton (BBB): is a web conferencing system integrated into Moodle at The University of the South Pacific (USP) that is used for online learning to reach remote students. BBB is designed for collaboration and engagement; you can also use it to record a lecture or lab session for students to access remotely.

Cognitive presence: a component of the Community of Inquiry Framework that focuses on the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse (Garrison, Anderson & Archer, 2001

Social presence: a component of the Community of Inquiry Framework that focuses on the ability of participants to identify with the community (e.g. course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities (Garrison, Anderson & Archer, 2001)

Teaching presence: a component of the Community of Inquiry Framework that focuses on the design, facilitation, and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes (Garrison, Anderson & Archer, 2001)

Virtual: in a technology context means something like "remote and via the internet" (especially when accessed via a **live** video feed). The adverb form virtually **can** be used in the same way, as in I **can**'t make it into the office, but I'll be working virtually.

Conferencing: the activity of talking to people in different places using phone or computer systems.

Live chat: Live chat allows person to person communication in real time. Rather than having to speak with a person on the phone, communication happens on a website where you have live interaction in a chat box within a browser.

Instant Messaging (IM): Instant messaging, often shortened to IM or IM'ing, is the exchange of near real-time messages through a stand-alone application or embedded software. Unlike chat rooms with many users engaging in multiple and overlapping conversations, IM sessions usually take place between two users in a private, back-and-forth style of communication.

Polling: in the context of synchronous teaching, it is functionality that is built into online synchronous tools such as Zoom and BBB that allows a teacher to be able to administer quick polls during a session.

Break-out room: in the context of synchronous teaching, it is functionality that is built into online synchronous tools such as Zoom and BBB that allows a teacher to split/break up the class into smaller groups and assign them to rooms during a session.

Whiteboard: in the context of synchronous teaching, it is functionality that is built into online synchronous tools such as Zoom and BBB that allows a teacher to use drawing tools to further illustrate concepts taught in a session. The teacher can also invite learners to contribute to the whiteboard if it does fit in with the purpose of the session. In such a case, the teacher will need to first enable this for learners before they are able to contribute.

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