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Effectively Use Synchronous Virtual Classroom Technologies

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The rapid advancements of computer and internet technologies over the past decade have expanded the educational possibilities offered by virtual communication tools to mediate teaching and learning activities. Furthermore, the COVID-19 pandemic has resulted in unprecedented transformations in medical education, with a shift from face-to-face learning activities to digital education. Virtual classroom technologies have played a pivotal role in supporting such transformations, mediating real-time interactions from different places (Sandars et al. 2020).

Virtual Classrooms

Virtual classrooms are defined as a "digital environment… allowing tutors and staff to communicate, interact and engage synchronously in teaching and learning activities" (QAA 2020). Virtual classrooms are a tool for mediating synchronous learning, whereby learners engage with material and instructors in real-time, although not necessarily in the same place. This contrasts to asynchronous learning, which does not involve learners in the same place or at the same time (e.g. a task to gather information on a topic individually by a set date).

Learning Design

There are numerous virtual classroom platforms, such as Microsoft Teams, Zoom, Blackboard Collaborate, Adobe Connect and TopHat. With careful planning, virtual classrooms can be used for both small group and large group teaching to facilitate learning experiences in a number of different ways, including:

- Online lecture with interactivity: Closely resembling face-to-face, learners are often muted and the instructor shares a presentation or screen to support their verbal delivery. Sessions can normally be recorded for learners to revisit and revise.
- Activity-based session / Tutorial: Sessions are based around activity, using breakout rooms to split learners into small groups with discussion based tasks to work on. Plenary feedback can be offered via a 'main room' periodically.
- Question & Answer (Q&A) / Panel discussion: Learners can submit questions in advance and address them in the session. This allows issues to be addressed in real-time and gives you feedback on learners' understanding. Alternatively, a panel discussion or debate format can be used that require learners to pick a side.
- Flipped classroom: A workshop style session could mix short presentations, Q&A and polling in order to summarise and reinforce content previously delivered asynchronously online. This approach takes pressure (and risk) off the synchronous session in terms of content delivery, while providing opportunities for active learning.
- Consultations: Learners bring challenging dilemmas, clinical case studies or problems and obtain group advice. This can be particularly effective with adult learners.

Virtual Classroom Tools

Within many virtual classroom solutions there are often a number of tools that can mediate a range of specific activities and interactions, including:

Text Chat and Emojis

Whilst presenting, learners can use the chat feature to ask questions, send private text messages or respond to content without interrupting. To ensure that the instructor and learners are not distracted by the text chat and keeping track of activity, you may want to teach in pairs. This way one colleague presents whilst the other moderates the text discussion.

Emojis are small digital images or icons used to express an idea or emotion. They can be effective in conveying non-verbal feedback and can help in interacting with learners. For example, learners can use the thumbs up or down emojis to show if they agree or disagree with a statement or opinion (Luke 2021).

Breakout Groups

Breakout groups allow you to split the class into smaller groups and set a task or discussion point, which increases opportunities for learner participation. In breakout rooms, learners can have discussions, work on projects, role play, or brainstorm. Breakout rooms can also be beneficial for learners who are uncomfortable participating in large groups.

Polling

Most platforms offer basic polling tools which can be used to ask questions of learners. This can be a very powerful way of reinforcing learning, checking understanding or prior knowledge, and stimulating discussion.

Whiteboard

The whiteboard can be a collaborative canvas used by instructors and learners to write, draw, or display pre-designed content, much like a physical whiteboard or flipchart. Key points can be annotated on the board and learners can be invited to contribute to the whiteboard as an engagement exercise, e.g. highlight elements on a diagnostic X-ray or collaboratively list risk factors associated with a specific condition.

Screen Sharing

Screen sharing is an effective method displaying a video, slide presentation or pictures. Instructors can also demonstrate how to perform a specific task (e.g. how to complete a clinical assessment form).

Practical Tips

Align with Learning Outcomes
Instructors should carefully set learning outcomes, design learning activities and align the use of virtual classrooms with the rest of the curriculum. Synchronous sessions should offer opportunities for interaction and avoid duplicating what is covered elsewhere in the course.

Cameras and Microphones
Ensure that participant microphones are muted when presenting. This will avoid unintended background noise from the learners' environments.
Allow learners to make a choice whether to enable their camera or use virtual background filters. Learners might be uncomfortable with displaying their living space with peers or may not want their images captured for privacy reasons. Some learners might have unreliable internet access and low bandwidth. To help assess attention and engagement, real-time check-in activities can be used instead (e.g. text chat, emojis).

Take Breaks
During live sessions, encourage your learners to stand up, stretch, walk around. In the online environment it is important to build in a regular break (ideally every 15-20 minutes) for a breakout task or reinforcement activity (e.g. quiz, discussion, Q&A).

Manage Learner Expectations
Adjust expectations of having the same duration and frequency of sessions in your class schedule. Keeping things shorter will help reduce cognitive load and give learners time for processing and recharging.
Email learners beforehand to outline topics and explain how they should prepare. When learners have time to prepare, they are often more invested in the discussion and willing to participate. Preliminary information from learners might help in preparing appropriate activities and materials (e.g. create a quiz to assess prior knowledge). This also demonstrates visible interest in your learners' needs, which will support learner engagement in the synchronous environment.

Humanise the Experience
Adjust the tone of your written materials and communications to be more conversational when appropriate. Academically rigorous language can come across as rigid or impersonal online.
Whilst learners are 'arriving' into the session, use this as an opportunity to socialise and chat. You might consider pre-loading a slide that features a current event or trivia question to spark initial conversations. This helps break down social barriers and creates the expectation of interaction.
Posing questions throughout the session can be an effective strategy for maintaining engagement, but ensure you provide ample time for learners to process the questions and formulate responses without putting anyone on the spot.
Be flexible and forgiving regarding attendance requirements and offer alternatives whenever possible for learners who are unable to attend or may need to leave early/arrive late.
Recorded sessions are not the same as real-time experience, so consider some other ways to engage learners with content and peers asynchronously (e.g. informal groups via mobile messaging apps, discussion forums).

Key Points

- Consider potential barriers to engagement (e.g. time zones, digital literacy, technical issues, learners with disabilities). Provide alternative opportunities for learners to engage outside of the virtual classroom.
- Virtual classrooms should not be used solely for didactic presentation (an asynchronous video would be more appropriate). Break the session into a series of components, interspersed with small learning activities.
- Ask learners questions and/or use the chat function and polls to add interactivity. If possible, ensure a second member of teaching staff manages the chat function during the session.
- When asking questions, give learners sufficient time to prepare/write their answers.
- Do a social check-in at the beginning of class and clearly situate the session within the wider curricula.
- Supplement live sessions with resources learners can explore independently and consider posting session summaries.
- Respect learners' privacy and safety. Encourage learners to use cameras/microphones, but do not mandate their use.

Conclusion

Medical educators need to develop and implement innovative solutions in response to the challenges facing global society (Sandars et al. 2020). Virtual classrooms can provide opportunities for collaboration between educators and learners that might otherwise be impossible. However, they should not be over-relied upon for delivering teaching. Remember that online sessions compete with the real-world distractions of the environment that learners are situated in, so maintaining engagement is vital. Synchronous activities might also disadvantage some learners, such as those with specific disabilities, limited technological literacy or inconsistent online access, which will require additional consideration and support (Luke 2021).

References and further reading

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