

TECH TOOLS FOR TEACHING

In the context of the COVID-19 pandemic, educators have had to adapt course materials, didactic sessions, and assessments to the virtual environment. The resources highlighted here include platforms for virtual teaching and learning, as well as tools to enhance learner engagement/participation in the virtual environment and create teaching aids and course materials for asynchronous learning.

THE CLASSICS

1. [ZOOM](#)

COST: Free for up to 100 participants & 40-minute sessions (available with institutional account)

Zoom is a video-conferencing platform for meetings, webinars, or interactive teaching sessions. This platform has many interactive tools built-in and allows you to record sessions. The breakout room function is notable because it enables the host to create small group rooms where participants can work on their own, which enhances the interactivity of Zoom. I would recommend Zoom for anyone who wants to create a truly interactive virtual learning experience.

- **Jennifer Spicer**

2. [ZOOM TEACHING: MOVING BEYOND POWERPOINT](#)

COST: Free

This 30-min video summarizes all the must-knows of Zoom teaching: advanced settings, the virtual learning climate, interactive tools, and other programs that can be linked to Zoom to enhance your teaching. This video does not simply show you how Zoom works; it guides you on how to use it effectively for teaching by sharing practical tips and real-life examples.

- **Gerome Escota**

3. TUTORIAL SERIES ON ZOOM TEACHING BY JENNIFER SPICER AND GEOFF STETSON VIA TWITTER

COST: Free

This is a recent paper that provides step-by-step recommendations on how to reduce bias during recruitment. The strength of this paper is that it outlines an evidence-based approach to reduce implicit bias (e.g., common identity formation, perspective taking, consider the opposite). I recommend this to all program directors.

- **Gerome Escota**

- Part 1: [Introduction to virtual teaching](#)
- Part 2: [Zoom settings](#)
- Part 3: [Zoom with apps](#)
- Part 4: [Learning climate](#)
- Part 5: [Whiteboard](#)
- Part 6: [Interactive session](#)
- Part 7: [Choosing tools](#)
- Part 8: [Virtual equity](#)

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4. MICROSOFT TEAMS

COST: \$5 per user/month through Microsoft 365 Business bundle (with institutional account)

A group-chat software platform for video conferencing, webinars, interactive teaching sessions, and file sharing, Microsoft Teams allows users to create teams of users to facilitate group chats, video meetings, and group work. Our institution has used it for telehealth (allowing for learners to engage in patient care as a team member), interactive video conferencing, and creating virtual classrooms wherein educational material is uploaded to the team folder for members to view and modify. The learning curve is higher compared to Zoom. Still, the platform is more flexible, and its functionality can be enhanced with external apps such as Microsoft, Trello, and Evernote.

- **Roderick Go**

5. POLL EVERYWHERE

COST: Free for up to 40 respondents

Poll Everywhere is an audience response platform for slide-based presentations. It is compatible with PowerPoint, Keynote, and Google Slides. It allows the presenter to create audience response questions that can be embedded in a presentation. Audience members can respond via the website or a free app on their mobile device. Question types range from straightforward multiple-choice to free text (which can be displayed as a ticker or word cloud), to up-down vote, to clickable images (great for radiology images, EKGs, Gram stains, maps, other schematic diagrams, etc.). I have used PEv in large group presentations (UME/GME lectures/conferences) for both knowledge retention and application questions, and as a way to gather feedback at the end of a session.

- **Varun Phadke**

TEST AND EXPLORE

1. ANKI

COST: Free. Ideally need to download an app on a computer or smartphone.

Anki is a web-based electronic flashcard application that uses spaced repetition to help users learn content. Users can either use pre-made flashcards (crowdsourced from individuals who have created and shared flashcards) or create their own. I have used the platform to create clinical vignettes with answers for medical students to use to study for tests. This is the tool that all medical students are using to study, and you can create and share flashcards with others, which makes it a powerful tool for teaching medical students. Plus, students can access the flashcards on their computer or smartphone-based applications. I would recommend that individuals teaching medical students check this out and consider how they could create flashcards that reinforce important content from their courses.

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2. LUCIDCHART

COST: Free or paid plans starting at \$8/mo

LucidChart is an online platform that is useful for creating flowcharts, diagrams, and schema. An educational license allows you to have ten editable documents at a time. Best for collaborations and can build templates for student use. It operates very similar to Microsoft Office products in a virtual environment. I have used it to create schema and organizational charts for my students to fill in.

- Emily Abdoler

3. KAHOOT

COST: Free

Kahoot is interactive software for the creation of quizzes and games. The free version has some limitations in terms of the number of users that can participate. Essentially quizzes can be created and accessed by an audience via their smart devices or computer. The results can be accessed afterward, and there is an element of competition to add to the learner's engagement. Kahoot is easy to set up, use, and incorporate into any lecture or presentation.

- Joe Cooper

4. PADLET

COST: Free version with limits, paid plans starting at \$8/mo

Padlet is a collaborative productivity website that allows for organization in a variety of different formats. Apps available for mobile devices as well across the main operating systems. Can drag and drop files from the desktop as well as integrate with social media. Would be good as a brainstorming tool for small group case discussions that feature too many people to adequately discuss out loud. Can share the link to allow all participants to access/collaborate and then share your screen so that everyone can more easily see the evolution of the discussion.

- Todd McCarty

5. BIORENDER

COST: Free or paid plans starting at \$35/mo

Science themed figure creator. Webinars are available for training. Built-in icon library to choose graphics from while building a scientific figure. No download required, entirely web-based. The free version has limits on the number of images able to be stored. It allows for usage in educational platforms, and you can add your images and icons for use, but limits image download size and does not give permission to use in journal/manuscript submission. Paid versions remove storage limit, image download size limit, and allow for usage of created images for journal/manuscript submission, as well as requests for custom icons/images.

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- **Emily Abdoler**