# Technology Teaching & Learning Tools

There are hundreds if not thousands of tools available to support teaching and learning. Below is a list of popular options and best practices. Please visit the Center for Learning Design website for additional technology tools and resources.

Concept Maps

Example: Refer to the example below and consider what concepts could be mapped in your courses.

Image from: https://www.lucidchart.com/pages/examples/concept-map/simple-concept-map-template
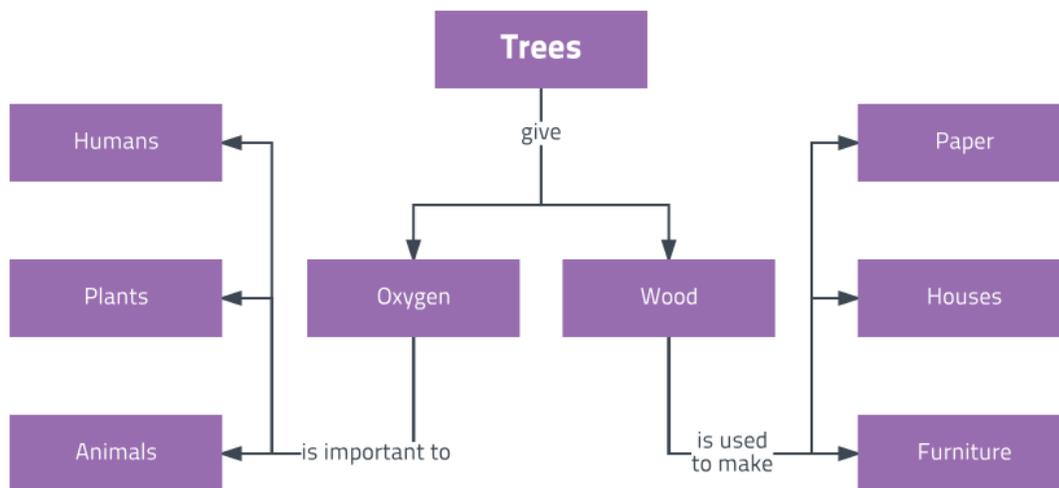
Potential Uses (online, hybrid, classroom): discussion (individual or groups), assignment (formative or summative), class notes, study guide, meaningful learning tool (explicit purpose). Faculty can use concept mapping to organize thoughts about content/course/lecture.

Resources: There are many online tools to create concept maps. Students can draw (low tech), use Word tools, or select an online tool. One online tool that is free, collaborative and easy to learn & use: Coggle

Best Practice: Research supports the use of concept maps as a tool to increase the quality of student learning (Kinchin, 2014). A concept map requires students to reflectively consider and demonstrate the relationships between important course concepts. As faculty, we request structure appropriate to student skills in constructing concept maps (from blank paper to fill-in the connections). Works best with constructivist learning; not well suited to memorization or recall – use flash cards/quizlet for memorization.

Polling

Example: *Quick demonstration*. Ask students to "vote" on a topic or select the correct answer (in PowerPoint or in response to a verbal or asynchronous question).

Potential Uses (classroom, hybrid, online): check student understanding/thoughts, confirm/assess prior knowledge (flipped classroom), think-pair-share, peer tutoring, educational games/competition, quizzing*, attendance*. Faculty can use polling in or outside of class to gather student data/opinions.

Resources: Stockton has Turning Point clickers (complete request form). There are many available tools to purchase. Low tech polling in the classroom can involve colored cards, letter paddles, or physical objects. Online tools that are free and easy to learn & use: Mentimeter, Kahoot, Poll Everywhere and Socrative.

Best Practice: Research supports the use of student response systems (clickers/polling) as a tool to increase student engagement and participation especially in large lectures (Heaslip, Donovan, & Cullen, 2014). Recent research suggests use of polling/on demand testing with feedback can increase student academic performance (exam scores) although additional research is needed (Balta, Perera-Rodríguez, & Hervás-Gómez, 2018).

Video Lessons

Example: Using video you select, create a lesson (make comments, assess student understanding, guide students through video learning experience). An example video (adult learners) can be viewed at this link: https://edpuzzle.com/assignments/5b16b56066e15440617be97d/watch.

Potential Uses (online, hybrid, classroom): check student understanding/thoughts, prepare students prior to class (flipped classroom), review after class, start conversations, prepare for discussion, learn content, gather student thoughts/opinions on video, verify students watched video*, track student performance*.

Resources: Free and easy to learn & use: Edpuzzle. Other options playposit and nearpod.

Best Practice: Watching videos is typically a passive activity that may not engage students and promote learning. Research supports the use of interactive video tools to improve learning. A study by Shelton, Warren, & Archambault (2016) showed that quiz performance improved with interactive videos when compared to conventional video watching. Literature includes discussions about the benefits of interactive video for students with learning differences and in promoting a culturally responsive learning environment (Fullam, 2017).

Study Tools

Example: Students use flash cards to memorize terms or buy study guides. The internet is full of a variety of study tools appropriate to a wide variety of disciplines. A google search will typically assist you in finding discipline specific tools.

Potential Uses (online, hybrid, F2F): review after class, learn content, study terms for assessment, promote self-study, learn more about course content (for motivated, engaged students)

Resources: Free and easy to learn & use: Quizlet (flash cards with quizzing/games) or StudyStack. Other options: Evernote (organize study materials or information for research paper) or OneNote. Example of study tools to recommend/use: Crash Course (politics, ecology, physics, astronomy, world history, computer science, chemistry, biology and more).

Best Practice: Adult learning principles tell us that adult students learn using different styles (visual, auditory, kinesthetic), are self-directed, and need to be responsible for their own learning. Adult learners bring previous experience and a task-oriented approach to learning. The availability of well-planned resources and study tools including an explanation of the tool's purpose supports the learner. For a brief review of these principles and application to course design click here.

Rubrics

Example: Rubrics must be constructed to measure important skills/knowledge/values based on student learning outcomes. This sample rubric scores course/seminar participation based on student behaviors reflecting listening, speaking, preparing for class. Rubrics must match assignment instructions/guidelines. The purpose of a rubric is to make expectations explicit and reduce grading workload.

	Mastery	Proficient	Developing
Preparation	Came to discussion fully prepared with material read and open-ended questions written	Came to discussion with evidence of having given the material a cursory read. Questions were written, but they may not stimulate further discussion.	Either the text was not read, or it was not understood. Either no questions or poor questions were written.
Speaking	This student participates regularly, offering ideas that push the discussion in new directions.	This student participates but only sometimes offers ideas that move the discussion in new directions. Some distracting speech.	This student is either distracting, overly quiet, or only makes remarks that do not advance the discussion.
Listening	This student listens attentively, does not distract the other students in the seminar, and references points made by classmates when speaking.	This student listens, but he or she may be occasionally off task. Rarely or never refers to points made by classmates.	This student may fail to listen or may show no evidence of understanding his or her classmates. This student may also distract the other seminar participants.

From: https://study.com/academy/lesson/socratic-seminar-rubric-examples.html

Potential Uses (online, hybrid, classroom): provide explicit expectations, self-grading, peer-grading, faculty/instructor grading

Resources: Free and import directly into Blackboard: Click here to use or modify these examples from USC. You will import to Blackboard following instructions provided. Creating rubrics in Blackboard is not difficult (tutorial). Other options include rubric creators: Quick Rubric or select/revise pre-designed rubrics: iRubric.

Best Practice: Rubrics are valued for the ability to make expectations explicit. For faculty, rubrics permit descriptions of quality and success to be determined at the onset of an assignment/project/learning experience and communicated clearly to students new to the content and pedagogical expectations. Well-designed rubrics are constructed to match student learning needs to promote achievement of student learning outcomes. The literature supports assessment strategies such as well-designed rubrics to promote student learning, identify strengths and areas of need, review/assess student performance

for teaching effectiveness and curriculum needs, and use assessment data to communicate outcomes to various stakeholders (Buzzetto & Alade, 2006).

Activities

Example: The web and other teaching resources provide a variety of ideas to create active course learning experiences. We'll focus on discussion activities.

Potential Uses (online, hybrid, classroom): promote engagement (student-content, student-student, & student-faculty), permits students and faculty to assess knowledge or application of concepts. Many additional uses when used creatively.

Resources: Free and easy to learn & use: Padlet (posting responses on a wall instead of text threads; new users now limited to 3 walls), Lino, or Flipgrid (social media vibe; record short video responses).

Best Practice: In a study by Williams, Jaramillo, & Pesko (2015), improving evidence of higher-level thinking in online discussion boards occurs when instructors make known the expectations for the required depth of posts (be explicit). A strength of using online discussion, regardless of course format, is the ability of students to have time for reflection and processing information. Online discussions create time and space to promote students' critical thinking especially when instructor participation is less frequent but planned and purposeful (Arend, 2017).

Creative Presentations & Lecture Recording

Example: Creative presentations combine visual, auditory and kinesthetic methods of teaching into clear, organized and easy to understand presentations that promote student learning. PowerPoint is a familiar creative presentation tool. Zoom allows you to screen share a live presentation. When lecturing/presenting, plan for a 10-15 minute lecture followed by an active learning activity such as polling, discussion, skill practice or case application before continuing to lecture.

Potential Uses (classroom, hybrid, online): promote active learning and engagement (student-content), permits students and faculty to share knowledge or application of concepts, useful if recorded for flipped classroom. Many additional uses when used creatively such as having students create presentations.

Resources: There are alternatives to PowerPoint such as Google Slides, Prezi, Keynote and more. If we are using PowerPoint online and want our presentations to run automatically, we can use the narrate PowerPoint feature and post the show file. Other online tools such as iSpring can help you record and share lectures and create HTML5 or flash presentations based on PowerPoint. To record live lectures or class artifacts, a computer, camera, or cell phone is a low tech, low cost solution. Capturing your computer screen can be accomplished with screencasting. Free software for lectures and screencasting: Loom, Ezvid, Jing, Screen-O-Matic.

Best Practice: There has been criticism of PowerPoint, yet 93% of undergraduate students report being in a course where PowerPoint is used (Garrett, 2016). Presentations as a form of delivering information (lecturing) with a specific purpose and balancing the active learning needs of students can promote student engagement. The literature reports that well-designed presentations are effective vehicles for delivering information, providing prompts for discussion, promoting active learning, and improving perceptions of faculty teaching (Garrett, 2016).

References

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