

TechMatters: Visualize This and Annotate That! Whiteboards for Online Teaching and Presentations

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Effective instructors often incorporate visual learning tools into their teaching. Perhaps the simplest and most ubiquitous of these tools is the classroom whiteboard which allows teachers to demonstrate concepts and enhance lessons on the fly. Many instructors also use them to enable students to engage in interactive activities and hands-on learning exercises.

With a significant amount of our instructional efforts moving into the online environment, you may find yourself searching for a digital surrogate for your trusty classroom whiteboard. Fortunately, numerous online options exist, each with its own strengths and weaknesses. To aid you in your selection, I have tested a wide variety of tools and offer four worthwhile, perhaps lesser-known, options for your consideration.

Whiteboard Fox

<https://whiteboardfox.com/>

Perhaps the simplest of all the tools reviewed, Whiteboard Fox is very easy to access and use. It does not even require any type of account creation— just click on the “Start Drawing” button on the home page, indicate the level of permissions you want to grant to other participants (ability to draw/erase anything, draw/erase only their own drawings, or view only), and then select “Create Whiteboard”.

The drawing features are fairly basic (see Figure 1). There is only one type of drawing tool with a preset thickness (although you can change the color of the “pencil”), a ruler, and an eraser. In addition, you can add typed text and insert image files. The canvas is infinite and you can reposition it by selecting the “Move” option and dragging in any direction. You can also zoom in and out to get a closer or wider view of the canvas, which can be particularly useful when attempting to add detail to a drawing.

To share your board with students or an audience, use the “Share” button to get a link that will allow others to view the whiteboard in real-time using the participant permissions you selected at creation. Alternately, if you just want to share or save a static image select the “Snapshot” option. Finally, if you want to create a duplicate drawing on a new canvas you can do so using the “Copy All” option.

Although this tool does have limited drawing options, this might be one of its strengths depending on your perspective. It is a great option for anyone looking for an easy-to-use tool that does not require a steep learning curve for either instructors or learners, but that can still facilitate real-time engagement and collaboration between participants.

IPEVO Annotator

<https://www.ipevo.com/software/annotator>

A more comprehensive option that turns your entire computer screen into a “whiteboard” comes from the classroom technology company IPEVO. Although originally designed for use with one of its interactive classroom whiteboard systems, you can also download and install it on any Mac or Windows PC even if you do not own such a system. When you launch the Annotator tool, there is no registration required; the IPEVO toolbar will open and dock in the upper right-hand corner of your screen (see Figure 2) and you can then use the available tools to mark up any content on your desktop.

From the toolbar, you can select from a variety of drawing tools including pens of different colors and thicknesses, “disappearing ink” that slowly fades away after use (excellent for drawing attention to a section of the screen during a live demonstration), shape and line tools, a drawing compass, text boxes, an eraser, ruler, and protractor. Additionally, you have the ability to direct attention to certain

Figure 1: Whiteboard Fox drawing surface and tools

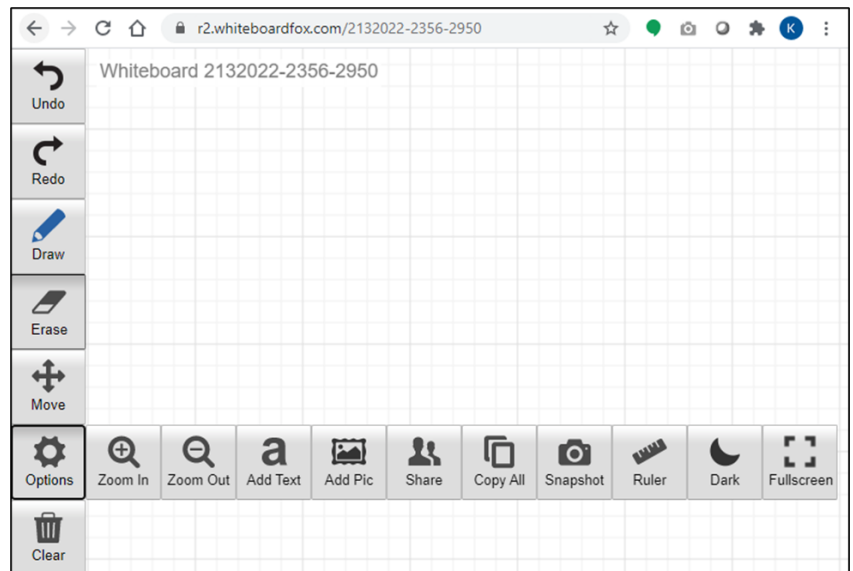
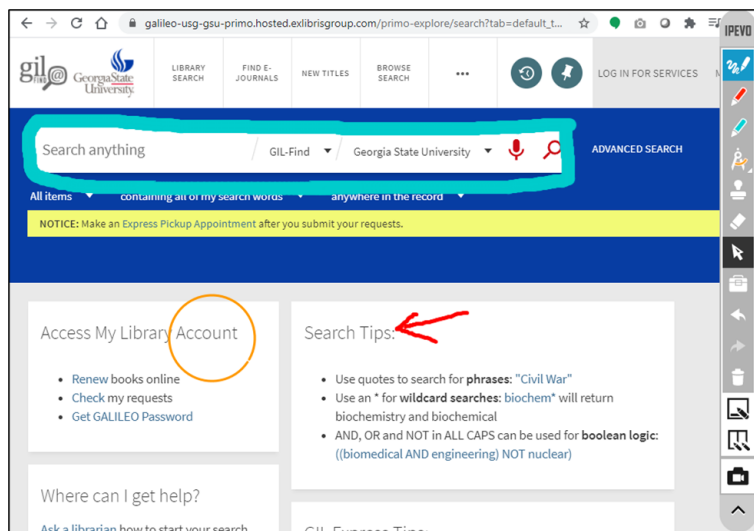


Figure 2: IPEVO Annotator toolbar allows users to draw directly on their desktop



parts of the screen by using the shading function (which darkens everything on screen except for a small circular portion) and, if necessary, using the magnifier function to enlarge small text or images.

If you prefer to work from a clean slate, you can do so by clicking on the “whiteboard” icon to get a blank drawing surface that takes up the full screen. From here, you can use any of the drawing tools, change the background color, and create additional boards between which you can toggle. You can also save a copy of your whiteboard for future use.

IPEVO Annotator also includes built-in screenshot and screen recording tools that are invaluable for creating and capturing graphics for presentations, developing tutorials, or capturing an online session for later review.

The only significant feature that this tool lacks is “live sharing” capability, so if you are looking for a collaborative whiteboard option then this is not the tool for you.

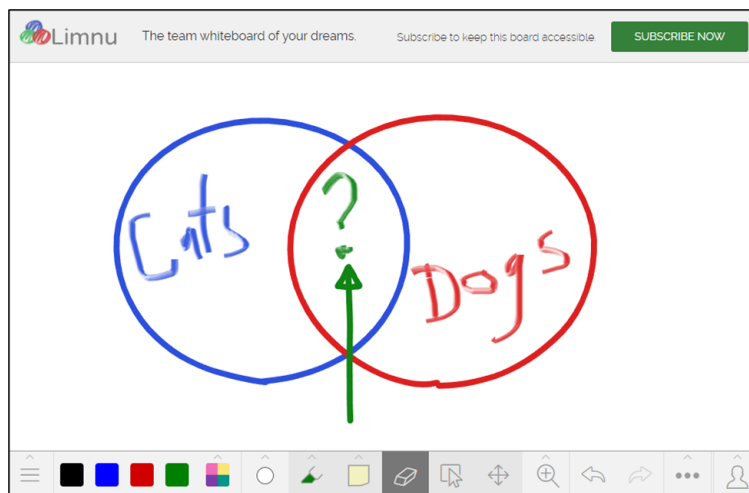
Limnu

<https://limnu.com/>

Unlike the previous two options, the Limnu whiteboard does require a user account. To create one, click on the “Sign Up Free” button, provide an email address, a name, and password. When you initially sign-up you will be prompted to choose either the “Pro” (recommended for individuals or tutors) or “Team” (recommended for organizations) plan for a 14-day trial which will automatically revert to the “Free” plan at the end of the trial period unless you decide otherwise by providing payment information. With a free plan, you can create both solo and collaborative whiteboards and invite an unlimited number of collaborators. The primary limitation is that each board you create is only accessible for 14 days.

To start drawing, click on the “+ New Board” button, give your board a name, select your board type (i.e., white-

Figure 3: Limnu’s drawing surface and tools



board, greaseboard [grey], blackboard), and whether you want it to be “solo draw” or “collaborative” (both allow other people to see the board, but only the latter allows others to draw on it). Drawing tools include pens, markers (that draw in the style of physical whiteboard markers), lines, arrows, boxes, and ovals (see Figure 3). You can also create text “notes” and add files (up to 10MB in size). If you want to save your work beyond 14 days, you can export a screen capture (although it will no longer be editable).

In addition to drawing tools, Limnu also offers collaboration options. You can share your board with others by either sending a message to specific individuals or generating a “shared link” or “access code” that you can copy and share using your preferred communication channel. You can control the sharing permissions to determine whether collaborators can edit or not, invite others, and/or manage board settings. Limnu also provides built-in text and video chat features so that collaborators can communicate with each other without using an additional online meeting tool (e.g., Zoom, WebEx, Teams).

Conceptboard

<https://conceptboard.com/>

Conceptboard is the most fully featured of the tools reviewed. Like Limnu, it does require an account to use and has both free and paid options. The free version is fairly robust, allowing you to “work with as many people as you want, on an unlimited number of boards for an unlimited period of time”. With this version, you are limited to 100 in the number of “objects you can place on a single board”, as well as to 500 MB of storage total (across all boards). You also do not get access to the built-in audio, video, and screen sharing tools.

When you create a new board, you can use all of the standard drawing tools including pens, highlighters, lines/arrows, shapes, text boxes, and sticky notes, as well as the option to add “comments” to any of the elements. In addi-

tion, Conceptboard provides users with an extensive library of pre-built templates, building blocks, and icons that you can insert onto the board and edit. Although the templates tend to be business and project management focused (e.g., Gantt charts, customer journey maps, SWOT analysis, etc) with a little imagination many of them can be adapted and used for other teaching and learning purposes. You also have the option to upload your own files and/or embed audio and video from platforms such as YouTube, Vimeo, and SoundCloud.

To share your board with others, click on the blue “Share” button in the upper right-hand corner and then decide whether you want to invite specific users (via email), or generate a link or QR code that you can share to grant access. If you want your invitees to be able to fully collaborate and edit your board, they will need to create their own account as “guest users” only have access to “read and re-view” if you (as the board owner) are using a free account. If you want to save a copy of your board outside the application, you can export it as either an image or PDF file.

Conclusion—Feature Comparison

Depending on how you intend to use a whiteboard in your online teaching and/or presentation there are a number of key features that you might want to have available in the application you choose. These include:

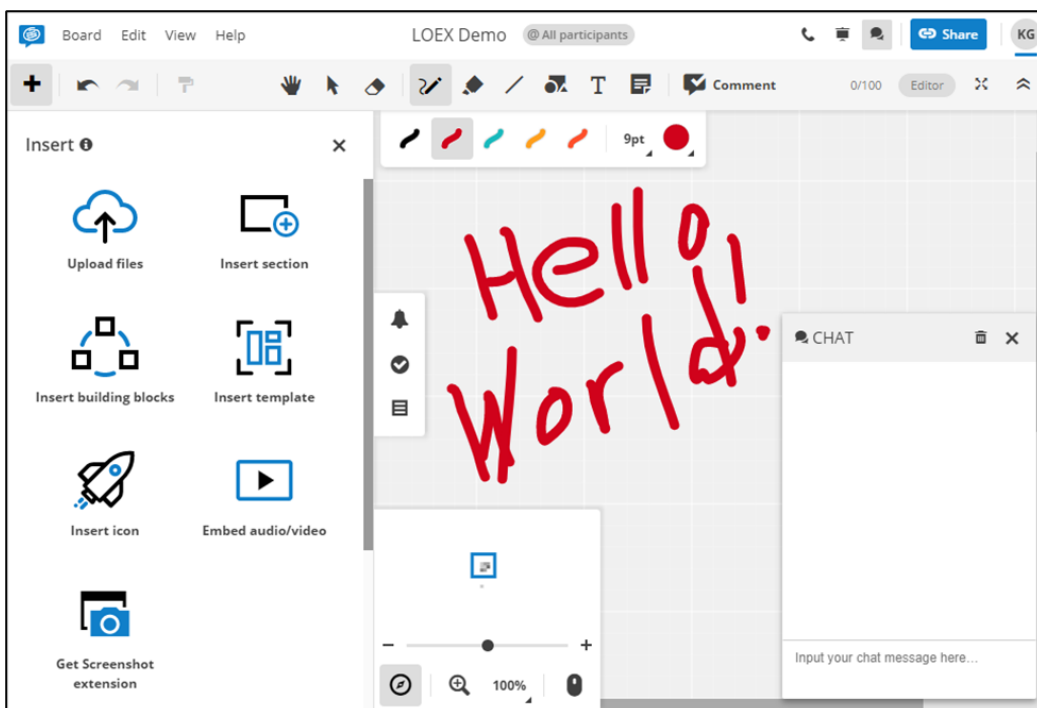
- **Live note-taking** and drawing using a variety of tools including pens/pencils/highlighters in assorted sizes and colors, erasers, as well as smart shape, line, and arrow drawing options.

- **An unlimited drawing canvas** to allow for large and/or complex visualizations with zooming and panning functionality to facilitate alternate vantage point viewing.
- **File and image uploading** to allow embedding and annotation of documents, photos, and other items using whiteboard tools.
- **Commenting tools** such as notes, pins, and comment boxes to allow instructors and students to annotate drawings, ask questions, and add observations.
- **No account needed** for collaborators (and in some cases for board “owners” as well) so that class or presentation time is not used helping participants access the tool.
- **Collaboration features** that allow you to share your board with students, control activity levels (e.g., read, write, edit), and communicate with participants (e.g., chat messaging).
- **Template library** containing pre-made digital assets such as icons, charts, graphs, and page layouts.
- **Save and/or export** options to allow you to archive your work for future use or reference.
- **Free** or free with optional, reasonably priced paid accounts for access to “premium” features.

So, how do the tools reviewed above measure up in these categories? Here’s a summary to help you choose your best option as you consider how to get on board with a more interactive, visual style of teaching:

(Whiteboards...Continued on page 10)

Figure 4: Conceptboard toolbars offer drawing tools, embeddable assets, and communication tools



	Whiteboard Fox	IPEVO Annotator	Limnu	Conceptboard
Note-taking and Drawing tools	Basic: pens, eraser, ruler, text box	Pens, basic shapes, stamps, eraser, ruler, protractor, text box	Markers, pens, lines/arrows, basic shapes, eraser	Pens, highlighters, lines/arrows, shapes,
Unlimited canvas	Yes	Yes, plus ability to annotate any desktop content	Yes	Yes
File Uploads	Images (4000x4000 px maximum size)	Images	Images, documents (10MB maximum size)	Images, documents (10MB maximum size)
Commenting	Text box to add notes	Text box to add notes	Notes, labels, pins	Text boxes, sticky notes, comments tool
Account-less participation	Yes (both owner and participants)	Yes, but requires application download	Yes, for participants with shareable link	Yes, but collaborators need an account for full editing permissions
Collaboration	Share via real time link, or snapshot view	No	Yes, permission can be view only or edit	Yes, permission levels are read, review, edit
Template Library	No	No	No	Yes
Save/Export	Snapshot can be saved to personal device	Screenshot or video recording can be saved to personal device	Screenshot export. Boards saved for 14-days with free account	Export as image or PDF. Saves unlimited boards
Price	Free	Free	Free plan includes unlimited collaborative or solo boards, 14-day access to boards. Pro plan for \$50/year includes additional security and admin controls, and saves all boards.	Free plan includes unlimited collaborators (50 per board, max), unlimited number of boards, no time limitation. Premium account for \$72/year includes increased storage (20GB), larger upload limit (25 MB) and audio/video screensharing.

(Adult Learners...Continued from page 3)

leverages the andragogical principle of “experience” as an integral part of the library instruction session. For example, I have found success pairing adult learners with more traditional students to come up with a working definition of “fake news” and other source evaluation concepts; doing so allows adult learners to connect their personal histories (e.g., they may bring to the group examples of conspiracies or instances of propaganda and misinformation from their lived experiences that demonstrates “fake news” is not a new concept). This allows the adult learners to share with the larger group from a place of confidence and promotes a sense of community when approaching their research as an information problem we all are going to solve together. Another tactic that I have employed is creating a concept map for their research assignment with a pen and paper, as a means to help them visually work out the problem of how to find sources on their topic. This provides the means to engage adult learners’ “orientation to learn” by shifting the library instruction from subject specific to problem-centric. When, on the flipside, their lack of experience can make more obstacles for them in the classroom, greater flexibility with

expectations of how outcomes are achieved is required. When working with adult learners, whose technological experience may be more variable and less robust, the use of technology itself becomes a learning outcome in addition to those information literacy outcomes to which we are accustomed. Adult learners are often aware of the gaps they have in technological know-how, and if this gap is acknowledged respectfully, it provides an opportunity to activate their “need to know” andragogical motivation and to improve their technology and information literacy skills.

Conclusion

There are a multitude of reasons that adult learners return to the formal learning environment of a college and university classroom, but in the end, they want the same thing as any student: the chance to do their best in order to achieve their academic goals. Being aware of and using the principles of andragogy, along with other techniques, can help ensure that happens. It is incumbent upon librarians and information literacy practitioners to accommodate our instructional practices to meet their needs.