21st Century Learning - Students Plan Strategies to Guide Inquiry

by Nathan Smith, Utah State University

Let’s begin by asking, "What does this look like in schools?" Have a look at the two videos, "Inquiry-Based Discussion Grade 7 / ELA / Inquiry" and "Classroom Strategies for Inquiry-Based Learning"

Are you seeing that in truly engaged classrooms the teacher is more of a facilitator? One method for facilitating learning is through inquiry. "Inquiry-based learning starts by posing questions, problems or scenarios—rather than simply presenting established facts or portraying a smooth path to knowledge. The process is often assisted by a facilitator." (Source) Edutopia has a whole section on inquiry-based learning. I encourage you to take some time now, and explore the Edutopia section on inquiry-based learning. Specifically, read this article within that section: Creating a Culture of Inquiry, by Andrew Miller.

At right are a couple of helpful inquiry strategy guides from readwritethink.org. The inquiry chart links to a strategy guide on how to implement this in your classroom. The next strategy guide is a K-W-L Chart, which tracks what a student knows (K), wants to know (W), and has learned (L) about a topic, can be used before, during, and after research projects. The image links to the PDF chart, and here is the link to the K-W-L strategy guide.

Common Sense Education has a list of teacher reviewed applications based on the keyword “inquiry.” You might want to check that out. This
Google search, and this one too, will lead you to many good resources about inquiry-based learning.

Inquiry-based learning encourages student creativity. Students aren't spoon-fed answers, but are guided to come up with answers of their own. That usually includes doing research, and current technologies have put that in their hands. In his article, "7 Tenants of Creative Thinking," Michael Michalko gives the following pointers.

1. You are creative!
2. Creative thinking is work
3. You must go through the motions
4. Your brain is not a computer
5. There is no right answer
6. There is no such thing as failure
7. You don’t see things as they are - you see things as you are

It’s an interesting read. Go check it out!

**Science Journal**: "Science Journal is a tool for doing science with your smartphone. You can use the sensors in your phone or connect to external sensors to conduct experiments on the world around you. Organize your ideas into projects, make predictions, take notes and collect data in multiple trials, then annotate and explore your results. It's the lab notebook you always have with you." (Source)

"Measure sound, light, and more using the sensors in your Android phone. Google refers to the Science Journal app as a pocket science laboratory because it allows students to measure data in real time using a phone. Sensors record ambient light (lux), intensity of sound in decibels (dB), and acceleration of the phone moving in three planes (m/s2). Students can design their own experiments and use Science Journal to collect and annotate data. Google provides Getting Started activities on their Making & Science website.

These activities are printable and will help acclimate students to the different tools available in the Science Journal app. Once the students get started they can build a project and save multiple trials to compare." (Source)
21st Century Learning: Students are able to locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media by Nathan Smith, Utah State University

There is a site that many educators library media personnel use to help students do this - it's The Big 6. From their website: "You can do BIG things with Big6 Skills! Big6 is a six-stage model to help anyone solve problems or make decisions by using information. Some call it information literacy, information communication, or ICT skills, or a process, but we call it the Big6.

Using the Big6 information literacy process, you will identify information research goals, seek, use, and assemble relevant, credible information, then to reflect—is the final product effective and was my process efficient. The Big6 information literacy process is completely transferable to any grade level, subject area, or workplace. Big6, state and national instructional standards, and your curriculum all work together hand-in-hand." (Source)

"Developed by information literacy educators Mike Eisenberg and Bob Berkowitz, the Big6 is the most widely-known and widely-used information literacy approach to teaching information and technology skills in the world. The Big6 is an information and technology literacy model and curriculum, implemented in thousands of schools – K through higher education. Some people call the Big6 an information problem-solving strategy because with the Big6, students are able to handle any problem, assignment, decision or task. Here are the six stages we call the BIG6. Two sub-stages are part of each main category in the Big6 model:

1. Task Definition
   - 1.1 Define the information problem
   - 1.2 Identify information needed

2. Information Seeking Strategies
   - 2.1 Determine all possible sources
   - 2.2 Select the best sources

3. Location and Access
   - 3.1 Locate sources (intellectually and physically)
   - 3.2 Find information within sources

4. Use of Information
   - 4.1 Engage (e.g., read, hear, view, touch)
   - 4.2 Extract relevant information

5. Synthesis
   - 5.1 Organize from multiple sources
   - 5.2 Present the information

6. Evaluation
   - 6.1 Judge the product (effectiveness)
   - 6.2 Judge the process (efficiency)

People go through these Big 6 stages—consciously or not—when they seek or apply information to solve a problem or make a decision. It's not necessary to complete these stages in a linear order, and a given stage doesn't have to take a lot of time. We have found that almost all successful problem-solving situations address all stages." (Source)
Newseum

The Newseum is an interactive museum of news and journalism located at 555 Pennsylvania Ave. NW, Washington, D.C. The seven-level, 250,000-square-foot museum features 15 theaters and 14 galleries.

One great feature of this site is the "Today's Front Pages." Each day, the site posts 825 newspaper front pages from all over the world.

"Anyone seeking permission to use or reproduce the front page of a newspaper featured in our Today's Front Pages online gallery must contact the newspaper's publisher directly. U.S. copyright laws apply."

"To protect the Newseum's agreement with the newspapers featured in the gallery, a watermark is occasionally instituted during news events of historic significance. The front page archives includes dates of historical significance only."

(Source)

DocsTeach-Teaching History Using Primary Sources

The following is a review of DocsTeach from the Edutech Integration Blog: "This one is mostly for Social Studies teachers. DocsTeach from the National Archives is a site all about using Primary Documents. When you visit the site you can find already created activities using various primary sources. There aren't that many yet, but the idea is for people to create and share their own. I looked at one about the New Deal and was impressed. You can also search through the various documents (3000+) and find one you are looking for.

The best feature is the ability to create your own activities from the various documents on the site. There are seven different activities that you can create using the various sources. The activities are based around seven different strategies: Finding a Sequence, Focusing on Details, Interpreting Data, Making Connections, Mapping History, Seeing the Big Picture, and Weighing the Evidence."
By focusing tightly on instructional strategies and PD, educators at Cochrane Collegiate Academy saved their school from closure. In just three years, they have doubled student performance, and they continue to reach higher.

Here’s a great new resource to share with your FFA or Agriculture Education students! Meet Connecterra, a start-up using machine learning to help dairy farmers keep their cows healthy and make their farms more efficient.

**Trello**

Trello is a collaboration tool that organizes your projects into boards. In one glance, Trello tells you what’s being worked on, who’s working on what, and where something is in a process.

Trello supports these modern browsers:

- Chrome: Latest stable release
- Safari: Version 6.0 or higher
- Firefox: Latest stable release

The Trello app is available for these mobile platforms:

- iOS: Version 9.3 or higher
- Android: Version 4.2 or higher with Google Play
MPEG Streamclip: Free Video Editor
Play Video, Convert Video, and Save Clips from Longer Videos

By Nathan Smith

Platform: Mac & Windows
Price: Free
Rating: 1 2 3 4 5
Users: Teachers, Students Gr. 4-12

Website: http://www.squared5.com

Purpose:
MPEG Streamclip is a powerful free video converter, player, editor for Mac and Windows. It can play many movie files, not only MPEGs; it can convert MPEG files between muxed/demuxed formats for authoring; it can encode movies to many formats, including iPod; it can cut, trim and join movies. MPEG Streamclip can also download videos from YouTube and Google by entering the page URL.

You can use MPEG Streamclip to open and play most movie formats including MPEG files or transport streams; edit them with Cut, Copy, Paste, and Trim; set In/Out points and convert them into muxed or demuxed files, or export them to QuickTime, AVI, DV and MPEG-4 files with more than professional quality, so you can easily import them in a DVD authoring tool, and use them with many other applications or devices.

Supported input formats: MPEG, VOB, PS, M2P, MOD, VRO, DAT, MOV, DV, AVI, MP4, TS, M2T, MMV, REC, VID, AVR, M2V, M1V, MPV, AIFF, M1A, MP2, MPA, AC3, ...

How can teachers or students use this?

There are many tools that teachers can find for free that allow them to work with videos. This tool is good for converting videos from one format to another. The reason I use this tool often is it's ability to extract just a clip from a larger video.

To do this, you first open the video in MPEG Streamclip. You can then press the play button below the video to start watching it. Drag the playhead to the starting point in the video that you wish to clip. You can use the arrow keys on your keyboard to move forward or backward one frame at a time in order to precisely pinpoint your starting place. Then you press the "i" key on your keyboard (think "in point"). A darker line will begin at that point to the end of the video in the play timeline.

Now drag the playhead to the ending point in the video where you wish your clip to end. Again, you can use the arrow keys to move to the precise position. Then press "o" on your keyboard (think "out point"). Now the darker line is showing the portion of the video you wish to clip.

Go to the FILE menu, and choose Export to MP4 (or other format you choose - MP4 is the most commonly used video format now). Click the "MAKE MP4" button and your video clipping will be processed and saved.

Note: this software hasn't been updated since 2012, but it is still a useful tool. You may run into bugs in newer operating systems.
My Experience

I have used this software often when I needed just a clip from a larger video - like a video I've downloaded from YouTube. I put these clips into my Google Drive, and then I can insert them into a Google Slides presentation I've prepared.

Most videos I pull into MPEG Streamclip work just fine. However, I have found a few that will not display in the window properly - a bug that seems to have appeared in recent upgrades to Macintosh OSX Sierra.

If it weren't for this, I would give the application a 5 rating. Since it hasn't been updated since 2012, this may be a tool that is fading off the radar - and I'll need to go hunt for another one.

Additional Help

How To Trim & Cut Video Files ~ MPEG Streamclip Tutorial

How to use MPEG Streamclip

Standards

Since this is a utility software, its use basically falls into ISTE standards for integrating technology into education. Below are the ISTE standards MPEG Streamclip tool would help teachers and students meet:

ISTE Standard 2 for Teachers:
Design and develop digital age learning experiences and assessments

• Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
• Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources

ISTE Standard 2 for Students:
Communication and collaboration
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

• Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
• Communicate information and ideas effectively to multiple audiences using a variety of media and formats

This tool could be used in student collaborative efforts to create presentations that include video clips. See last page for an example.

Teachers could use this tool in combination with Google Drive and Google slides to create classroom or flipped classroom presentations for their students.
Ideas how MPEG Streamclip could be part of a larger workflow:

A powerful alternative to PowerPoint is the collaborative Google Slides. Like PowerPoint, Slides lets you create slide presentations in a similar way. Each slide can contain elements such as text, images, audio and video, slide transitions, and more.

One feature Google recently added to Slides is the ability to insert videos from your Google Drive. Watch Richard Byrne's instructional video at right to learn how to do that. Slides also lets you insert YouTube videos.

MPEG Streamclip becomes useful in that workflow, because then you can save only the needed clips to your Google Drive and insert them into your Slides presentation.

GCFLearnFree.org has a great set of tutorials about learning to use Google Drive and Google Slides.

In combination, these are great tools for creating presentations - both for students and for teachers. The fact that Slides allows real time collaboration is a great feature!
FountainPen is a simple and clean writing environment specifically designed for distraction-free composition. Featuring autosaved compositions, FountainPen also includes integrated support for the Markdown system of plain-text formatting. It can also put up a backdrop—a sort of second desktop picture-over visual clutter to aid focus. (source)

Never be distracted while writing again.

**PURPOSE**

"FountainPen is a simple and clean writing environment specifically designed for distraction-free composition. Featuring autosaved compositions, FountainPen also includes integrated support for the Markdown system of plain-text formatting. It can also put up a backdrop—a sort of second desktop picture-over visual clutter to aid focus." (source)

**HOW WOULD YOU USE THIS?**

Fountain Pen is a great resource for any aspiring writer to use. It helps reduce distractions and clutter while writing. This would be perfect for students to use to help keep them focused while writing.
**PURPOSE**

"Need to put notes on the printed page? Finale NotePad lets you do just that – and much more – for FREE! Create orchestrations of up to 8 staves, and enter notes by clicking them into the staff or importing MIDI or MusicXML files. Once your music is in NotePad, you can hear it play back, see it on the printed page, and share it with other NotePad and users of other Finale family music notation software." ([source](https://www.finalemusic.com/products/finale-notepad/))

"With NotePad you can quickly and easily:

- Create scores of up to eight instruments, including lead sheets, guitar tablature, choral music, and much more.
- Enter notes, rests, lyrics, and other markings.
- Hear your music play back with high-quality built-in sounds.
- Share your music by printing beautiful pages and exchanging a variety of electronic files.
- Find out how fun and easy it is to transform musical ideas into beautifully printed music by downloading NotePad today.

Discover how fun and easy it is to transform musical ideas into beautifully printed music.

**HOW WOULD YOU USE THIS?**

This is the perfect resource for getting started with writing out music. It would be perfect for any music class or anyone wanting to learn or teach music.