

The Role of Visual Reinforcement in the Classroom

How the use of a document camera
can increase student engagement



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CONNECTING MINDS

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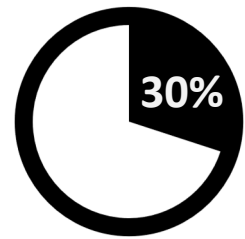
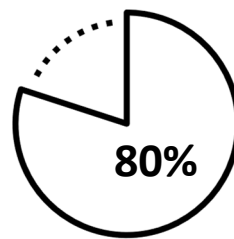
Overview

Executive Summary

The adage says that “a picture is worth a thousand words” and today these words ring truer than ever. The role of visual reinforcement in today’s learning process is even more crucial when the teacher and students may not be in the same location. A Milligan University study concluded that “overall, visual learning resulted in significantly higher scores in both immediate and delayed post-test conditions”. (Linder, Blosser, and Cunigan, 2009)



There have been many studies conducted over the years and the consensus is that individuals retain 80% of what they see but only 30% of what they hear. How is it that we can bridge this gap?



**Visual vs. Auditory
Learning**

Overview

“Visual explanations map thought more directly than words and provide checks for completeness and coherence as well as a platform for inference, notably from structure to process.”

(Bobek and Tversky, 2016)

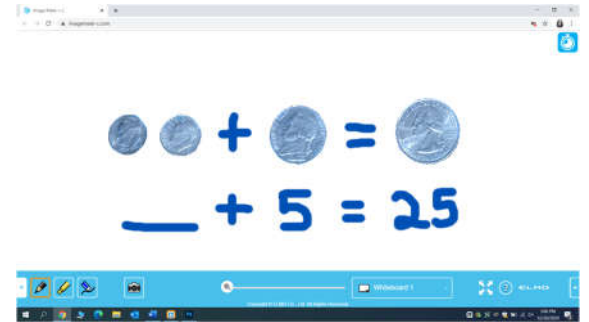
We must remember that the way you present your ideas greatly affects your audience.

In many cases, showing an object to a group of students so they can all see it at the same time is virtually impossible. For instance, consider a teacher who wants to share the beauty and complexity of a monarch butterfly's wing structure with their students. Obviously, the sample cannot be passed from student to student because of its fragility. And if it were placed in a clear plastic case, by the time it reached students in the last row, the teacher would have moved ahead to another part of the lesson. There must be a better way.

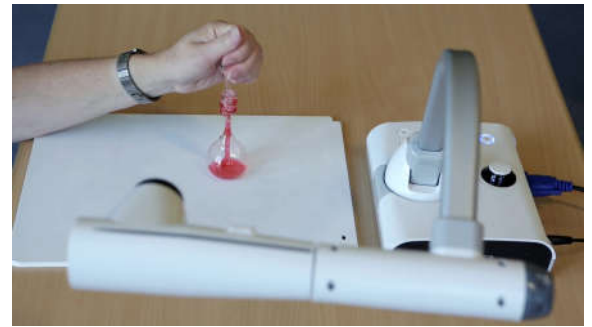


How can a Document Camera help in your classroom?

Math: Whether you are using coins, blocks, dice, or a geoboard, you will be able to place the object under the camera for the entire class to see as you work the manipulative and explain the concepts.



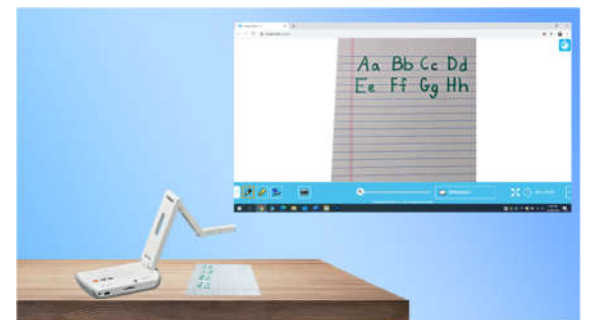
Science: Need to show a chemical reaction? A document camera is a great way to keep students at a safe distance and show all the up-close details. It is also a great tool for recording time-lapse video of a chick hatching or a hermit crab changing shells.



Reading: Place your story book under the camera to allow students to see the pictures and follow along while you read aloud.



Writing: Teach handwriting lessons easier on "real" lined pages as the entire class looks on. Examples can be recorded for review later.

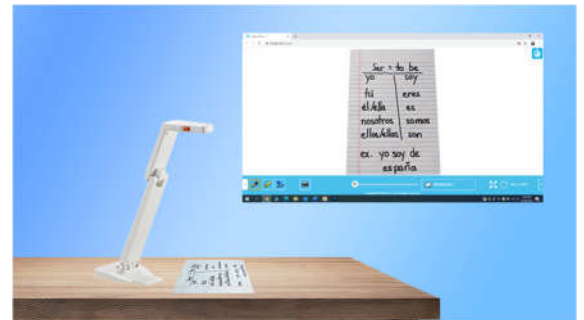


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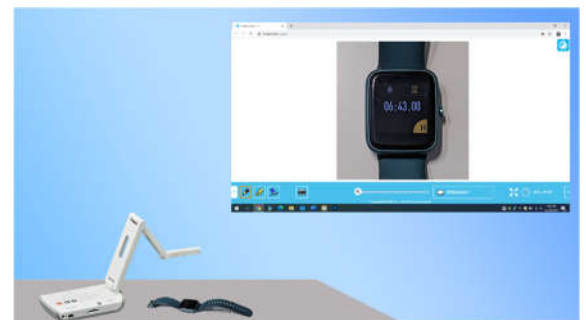
Social Studies: What more perfect way to start a discussion of historical events than to show actual newspaper clippings from the period. Ready to teach Westward Expansion? Plot the Oregon Trail or outline the Louisiana Purchase on a blank map. Let students guess what they could be.



Foreign Language: Easily show examples of properly conjugated verbs or go over proper sentence structure and word order so students can try the next few on their own.



Classroom Management: Timed quiz? No problem. Place a time piece or even a kitchen timer under the camera so students know exactly how long they have remaining.



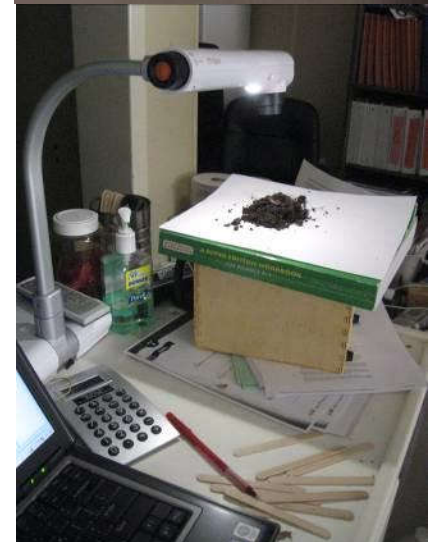
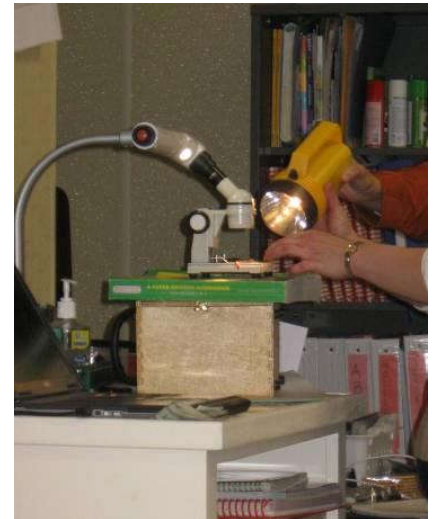
Case Study - Biology

Rosebud Primary School – Texas

The lesson objective: Observing and discussing a living organism at different levels of magnification.

How the document camera was used: After the teacher walked around and showed each child the worm up close, we then looked at it through the document camera which was positioned over a microscope eyepiece. The Students were able see what the worm looked like, and we were able to discuss how the worm moved around. After seeing it through the microscope, we removed the microscope viewed the worm using only the document camera. We Then added some dirt so the kids could see how the worm dug its way into the pile of dirt.

The benefits of the document camera: We were able to view the organism through the microscope as a class, aiding the discussion and ensuring clarity. Young student can experience frustration and disappointment with microscopes, this allowed those students to view the organism without experiencing these emotions. Since we were viewing a living organism, using the document camera ensured that it would not be harmed during the learning process.



Case Study - English

Country Isles Elementary School – Florida

The lesson objective: To identify and review sight words.

How the document camera was used: Three students are assigned to go to the ELMO station to use the ELMO document camera. One of the three students is in charge of selecting one of their sight word readers and placing the book (to a page of their choosing) under the ELMO document camera. The other two students have their back to the board and wait for first student to place his/her chosen sight word reader to a page of their choosing and point to a sight word. When the first student has selected a word to point to, he/she advises the other two students to turn around and look at the projected image of the book and the word that he/she is pointing to.

The benefits of the document camera: The first of the two students who identifies the sight word gets two points. The student who did not identify the word first gets an opportunity to earn one point by spelling the sight word. The first student to get ten points, then has the chance to be the next child to choose the sight book reader and point to a word. Regardless of how many points are earned on the second round, the student who did not have a chance to be the one to choose the sight word reader and point to a word is the next to have a chance.



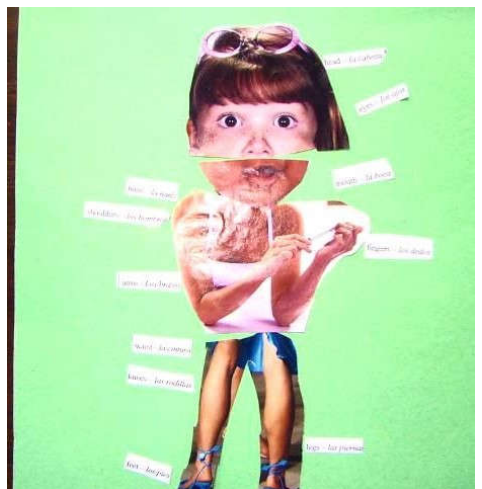
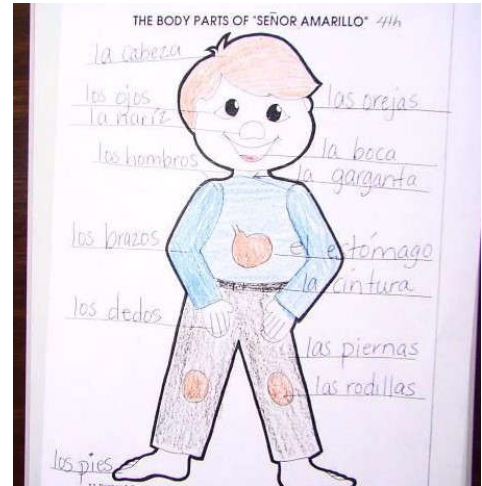
Case Study - Language

Lakewood Elementary School – Michigan

The lesson objective: To learn body parts in Spanish

How the document camera was used: The 4th graders are learning body parts. I introduced the body parts on the big screen first. Students viewed the screen and made guesses to what the parts were. Next the document camera was used for correct spelling of the words. The students then shared with other students. The 3rd graders are learning clothing. Students wore different clothes and pictures were taken using the document camera. This clothing picture was a game we played in class. Students viewed the pictures on the big screen and took turns removing pictures while eyes were closed. Students then had to guess what clothing piece was removed. The students loved this game, and it would not have been possible without the document camera.

The benefits of the document camera: The use of the document camera made it easy for the students to learn when the lesson incorporated a game using the document camera. They loved it!



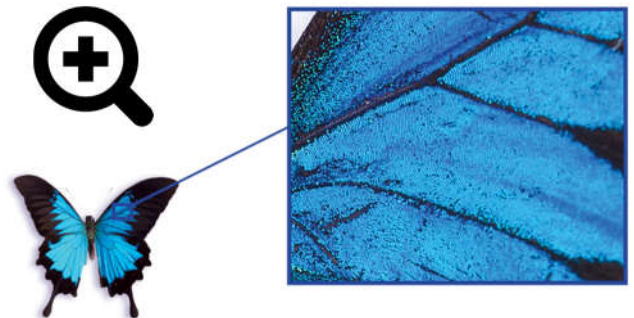
Choosing a Document Camera

What should you look for when choosing a Document Camera?

Resolution: A 1080p Full HD resolution is great for everyday classroom use. Need to see even tinier details? A 4K Ultra HD camera is right up your alley. The higher the resolution the better the quality



Zoom: Zoom comes in many forms: Optical zoom provide crisp clear images. Sensor zoom digitally enlarges items without loss in quality. Digital zoom gets in extra close on small details, but you do lose some clarity. A camera with a high zoom ratio is perfect for viewing small text and objects.



Connectivity: HDMI, RGB, USB: does the camera have all the proper connections to interface with your computer, projector, monitor or interactive panel? For remote and hybrid teaching a USB connection is key. The camera should be compatible with Windows, MacOS, and Chrome. You'll also want a camera that can double as a webcam for the most flexibility. More advanced document cameras can even connect to the web to allow for direct access to content or to use educational apps.



Choosing a Document Camera

Wireless Casting: Wireless casting technology is perfect for classrooms where mobility is needed. You will not need any cables to stream your document camera to your capable projector or interactive board.



Battery Powered: A camera with a built-in battery means you can move your camera around and never be tethered to a single workspace. Batteries often appear in document cameras that feature wireless casting.



Portability: Do you have to move the camera from classroom to classroom or classroom to home? A small compact camera is great when you can simply fold it up and easily transport it in your everyday bag.



Options and Accessories: Having the ability to add on some extras can play a large part in your decision. Use a microscope for your lesson? A document camera with a microscope adapter lens will help you get the most out both items. Use ad hoc written ideas during the day? A document camera with a dry erase writing board option will save paper resources and create bright, colorful writing.



Why Choose ELMO?

ELMO has been a world leader in classroom technology solutions for 100 years. Since 1921, ELMO has been instrumental in providing exceptional products that are easy to understand and implement in the learning process.



Our comprehensive line of document cameras covers all educational applications from the in-class environment to distance learning and are a great alternative to traditional webcams.

As a pioneer of the document camera and with our continued contributions to the market, the name ELMO has become a generic name for a document camera. We offer an array of models from straightforward to one of the most feature-rich models that cover almost any visual content sharing application.



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