



Teaching with Instructional Video

"Emergent research suggests that video can add rich context to students' learning experiences without increasing cognitive load on working memory, translating into increases in complex, higher-order thinking.....The power of television and video for learning lies in the use of multimedia to engage students visually, cognitively, emotionally, socially, and civically in facets of the academic content. Visual learning can result in increased engagement as well as increased complexity, depth, and breadth of experience to improve student academic performances."

- Technology in Schools: What the Research Says, By Metiri Group—
Commissioned by Cisco Systems © 1992-2006 Cisco Systems, Inc. pp 5-6



Why Use Video in the Classroom?

Teachers who use instructional video report their student retain more information, understand concepts more rapidly, and are more enthusiastic about what they are learning. With video as one component in a thoughtful lesson plan, students often make new connections between curriculum topics, and discover links between these topics and the world outside the classroom (NTTI).

Video transports students:

- inside the human body and into the universe,
- around the globe to meet new people and hear their ideas,
- with illustrations of complex, abstract concepts,
- into dynamic Earth processes and laboratory experiments,
- to important events and stories of history, literature, music, and theatre.

Video has power to deliver lasting images that will:

- reach children with a variety of learning styles,
- engage students in problem-solving and investigative activities,
- begin to dismantle social stereotypes,
- help students practice media literacy and critical viewing skills,
- provide a common experience for students and classroom discussion.



Sitar Player



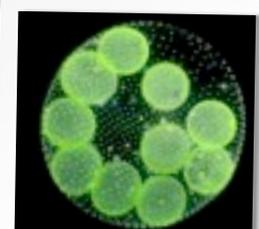
Solar System



Antarctic Volcano



Trojan Horse



Volvox

Effective Use of Multimedia Must be Driven by Research-Based Theories on How Students Learn

Multimedia brings the world into the classroom and is inherently motivating for students; however, to take full advantage of these resources, teachers must use effective strategies to integrate media into instruction. It has been proven that good instructional design is key to learning, no matter what forms of media are used. Although the learning environment may change, the human information processing system remains the same (Mayer 2003). For this reason, it is essential that educators use sound instructional design when integrating media into classroom lessons.



The human brain processes information via two channels: visual and verbal. Our mind then creates separate images of this content. It processes and stores information and retrieves it when needed. Each channel can only process a limited amount content at once (Clark & Paivio 1991). Multimedia provides both visual and verbal cues, allowing the brain to select, organize, and integrate information (Moreno & Mayer 2000), thus building a deeper connection to the content.

To provide an analogy, consider the traditional lecture in which information is received only via the verbal channel. Students receive pieces of the information, much like a puzzle. There are gaps, and the picture is incomplete. If teachers continue to add new information to this puzzle, much of this information will fall through these gaps. But when well-selected, quality media is added to the lesson, students receive additional information through the visual

channel. This helps to fill in these gaps and create a more complete picture, allowing teachers to scaffold new information and students to build upon this content.

“VIDEOS SHOULD BE USED TO EXTEND OR COMPLEMENT THE LESSON, NOT TO REITERATE THE LECTURE.” (Collett & O’Neil 2006)

Another factor to consider is the amount of video used. Extraneous information, especially when introduced at the beginning of the lesson, can impede learning. This extra content can activate the wrong schema and make it difficult for students to interpret the meaning and apply it to the lesson (Collett & O’Neil 2006). To make the media more meaningful, select video clips to focus students on the specific content as it relates to the lesson.

Finally, when using multimedia, several studies have shown that its effectiveness increases when it becomes interactive (Eskicioglu and Kopec 2003). Statistics indicate that students retain 75-90% of what they see, hear, and do. Compare this with a retention rate of 20% of what they hear and 30% of what they see. Interaction allows for a more deeper understanding and, therefore, a better retention. Create situations where they actively view media, not just passively ingest the content. Have students make predictions, ask questions, or record their impressions in images or words.

Clark, J.M. and A. Paivio. 1991. “Dual Coding Theory and Education.” *Educational Psychology Review*. 3:149-210

Collett, Jessica L. and Kathleen M. O’Neill. 2006. “Sometimes Less is More Effective: Applying Educational Research to the Use of Popular Video in the Sociology Classroom.” Paper presented at annual meeting of the American Sociological Association, Montreal Convention Center, Quebec Canada.

Eskicioglu, Ahmet M. and Danny Kopec. 2003. “The Ideal Multimedia Enabled Classroom: Perspectives from Psychology, Education, and Information Science.” *Journal of Educational Multimedia and Hypermedia*. 12:199-221.

Mayer, Richard E. 2003. “The Promise of Multimedia Learning: Using the Same Instructional Design Methods Across Different Media.” *Learning and Instruction*. 12:125-139.

Moreno, Roxanna and Richard E. Mayer. 2000. “A Coherence Effect in Multimedia Learning: the Case for Minimizing Irrelevant Sounds in the Design of Multimedia Instructional Messages.” *Journal of Educational Psychology*. 92:117-125

NTTI. *Tips for Using Instructional Video and Public Television Programming in the Classroom*. <http://www.brptv.com/html/edserv/ntti/nttipdf/02media.pdf>

STRATEGIES FOR EFFECTIVE USE

1. Segmented Viewing

View only the segment of the video which directly pertains to the objective of the lesson.

2. Pause

Pause the video to check for understanding, ask questions, or have students record information. Let students predict, hypothesize, and estimate what they will see next.

3. No Sound

Show the video without sound. Provide your own narration or show silently to help focus on the visual image.

4. No Picture

Turn the monitor around or cover it. Let students visualize what is taking place.

5. Second Viewing

The first viewing of a segment may evoke many emotions from the class. Especially for younger students, the first viewing may be used solely to allow the class this emotional response time, and the second viewing can then be used for more academic learning.

For more information, contact:



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